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A GLOSSARY OF THE MINING AND MINERAL INDUSTRY

BY

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FOREWORD

Since 1918, Albert H. Fay's Glossary of the Mining and Mineral Industry has been the authoritative dictionary of technical and local terms relating to metal mining, coal mining, quarrying, metallurgy, and other mineral industries. Throughout the English-speaking world, it has helped to standardize the expressions and terms in common use by those associated with these industries.

Because the demand for this glossary has been mounting steadily to the point where urgency is indicated, the Bureau of Mines has decided to republish the volume, which has been out of print for many years because the plates wore out from frequent use. In reprinting Fay's original work, it is recognized that new terms and expressions have come into the language; new usages have been applied to some of the old terms; and some of the old terms have become obsolete. The Bureau, therefore, will welcome and appreciate suggestions and comments from users of the glossary with respect to changes in definitions and explanations, as well as the inclusion of new words and phrases. It is hoped that, with their help, a new, revised, and improved glossary can be published at an early date.

R. R. Sayers

Director.

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A GLOSSARY OF THE MINING AND MINERAL INDUSTRY.

By Albert H. Fay.

INTRODUCTION.

This glossary is published by the Bureau of Mines as a contribution to the mining literature in the belief that it will fill a long-felt need. It contains about 20,000 terms; these include both technical and purely local terms related to metal mining, coal mining, quarrying, petroleum, and natural gas, and metallurgical works; names of useful, important, and common minerals and rocks; and geological terms. It presents in one comprehensive volume the available standard, technical terms relating to the mining and mineral industry, as well as provincialisms that have been or are now in use in English-speaking countries.

The glossary also includes many terms relating to ceramics and the clay industry, glass making, foundry practice, railway and building construction, electrical installation and power-plant equipment, and chemical terms relating to metallurgical practice. Complete lists of terms for each of these allied industries are beyond the scope of this glossary. Paleontological terms, although closely associated with geology, are far removed from mining and metallurgical operations, and for this reason have been omitted.

In a compilation of this magnitude, it is difficult, within a reasonable time to verify all definitions as to the latest usage. Much verifying was done and it is hoped that the best and latest definitions have been used. Reference to the publications cited will enable the reader to determine approximately the period when the definition was used.

Definitions in use by engineers of high national or international reputation are given first preference. When definitions from different sources are the same, credit is given to the earlier author as being the original or nearest to the original source. Immediately following each term the name of the locality wherein the word is presumed to have originated or is widely used is given, where such information is available. The name of the author or source from which the definition was obtained follows the definition, and serves as a key to the publications listed. The terms selected from the various glossaries and publications examined have been compared with the Webster,

the Standard, and the Century dictionaries. A large number of the terms are of purely local usage and do not appear in the dictionaries; these words include many that have been originated and are used by miners and mine inspectors, as well as many others that have been defined by courts, based on testimony given before a jury or judge.

It is difficult to determine when a word is obsolete. It may have been very much in vogue in a certain district, but with the exodus of a particular class or nationality, the use of the term may die out, hence become obsolete so far as that local usage is concerned, although it may continue to be used elsewhere. No attempt, therefore, has been made to eliminate obsolete words, for the engineer doing research work will find such terms, and if he can not determine their meaning from the context he should be able to find them in a glossary or dictionary.

The Spanish and Spanish-American terms were selected as being the most common terms that the engineer will encounter in Latin-American usage.

ACKNOWLEDGMENTS.

In the compilation of this glossary the Bureau of Mines gives credit for each definition as indicated in the list of authors quoted.

The author is indebted to J. W. Thompson, law examiner, Bureau of Mines, for the definitions cited from court cases, compiled by him in connection with his work on the annotation and compilation of Federal and State mining statutes; also to former employees of the Bureau of Mines as follows: Messrs. E. S. Boalich and B. F. Tibbey for selecting words from the text of technical publications, and to Messrs. J. W. Kingsbury and R. H. Seip for comparing the terms with and selecting additional terms from the Standard Dictionary. The Spanish terms were verified by Emilio M. Amores, chief translator for the Pan American Union. The entire list of words defined was compared with the Webster and Century dictionaries by the author.

The galley proof was read by James W. Paul and E. A. Holbrook, mining engineers, Bureau of Mines, for mining terms; by O. P. Hood, chief mechanical engineer, Bureau of Mines, for mechanical terms; by Frank L. Hess and L. La Forge, geologists, U. S. Geological Survey, for terms relating respectively to mineralogy and geology, and much assistance was rendered by M. R. Campbell and E. S. Larsen, U. S. Geological Survey, in scrutinizing terms relating respectively to physiography and petrology; and by David White, F. L. Ransome, and W. C. Alden, U. S. Geological Survey, in checking up certain definitions relating to geology. E. Baliol Scott, editor, and William Head, subeditor, *The Mining Journal*, London, reviewed the galleys for mining and metallurgical terms current in Great Britain. Many additional definitions were thus received and incorporated, certain revisions made, and a large number of suggestions adopted.

AUTHORS QUOTED.

The following is a list of authors quoted as authority for the forms and uses of words given in this glossary:

Quoted in glossary as—	Name of author and publication.
Anderson	Anderson, J. W. The prospector's handbook. 1898. (Includes a glossary.)
Bacon	Bacon, R. F., and Hamor, W. A. American petroleum industry. Vol. 2. 1916. (Includes a glossary.)
Bainbridge	Bainbridge, William. The law of mines and minerals. 5th ed. 1900 (Includes a glossary.)
Barrowman	Barrowman, James. Glossary of Scotch mining terms. 1886.
Bensusan	Bensusan, Arthur J. The Passagem mine and works. Trans., Inst. Min. and Met. London. 1910. Vol. 20, p. 3, et seq.
Bowles	Bowles, Oliver. The technology of marble quarrying. Bull. 106, U. S. Bur. Mines, 1916. Sandstone quarrying in the United States. Bull. 124, U. S. Bur. Mines, 1917. Rock quarrying for cement manufacture. Bull. 160, U. S. Bur. Mines, 1918.
Brunswig	Brunswig, H. Explosives. 1912.
Buckley	Buckley, E. R., and Buehler, H. A. The quarrying industry of Missouri. Missouri Bur. Geol. and Mines. Vol. 2, 2nd ser., 1904. (Includes a glossary.)
Butler	Butler, G. Montague. A pocket handbook of minerals. 1912. (Includes a glossary.)
Century	Century Dictionary and Cyclopedia. 1911.
Chance	Chance, H. M. Report on the mining methods and appliances used in the anthracite coal fields. Second Geol. Survey of Pennsylvania. 1883. (Includes a glossary.)
Chamberlin	Chamberlin, T. C., and Salisbury, R. D. Geology. In three volumes. 1906.
Chester	Chester, A. H. A dictionary of the names of minerals. (Includes history and etymology.) 1st ed. 1896.
Clark	Clark, H. H., and Means, C. M. Suggested safety rules for installing and using electrical equipment in bituminous coal mines. Tech. Paper 138, U. S. Bur. Mines. 1916.
Clennell	Clennell, J. E. The cyanide handbook. 1915.
C. and M. M. P	Coal and metal miners' pocket book. 9th ed. 1904. (Includes a glossary.)
C. M. P	Coal miners' pocket book. 11th ed. 1916. (Includes a glossary of rope terms, p. 262, and a glossary of mining terms, p. 565 et seq.)
Comstock	Comstock, J. L. Elements of geology. 1864. (Includes a glossary.)
Cox	Cox, Herbert. Prospecting for minerals. 1898. (Includes a glossary.)
Crane	Crane, W. R. Ore mining methods. 1910.
Crofutt	Crofutt, George A. Glossary of terms and phrases connected with the mining industry. 1902.
Daddow	Daddow, S. H., and Bannon, Benjamin. Coal, iron, and oil, or The practical American miner. 1866. (Includes a glossary.)
Dale	Dale, T. Nelson. The granites of Vermont. U. S. Geol. Surv. Bull. 404, 1909. (Includes a glossary.)
Daly	Daly, R. A. Igneous rocks and their origin. 1914.
Dana	Dana, E. S. A text book of mineralogy. New ed. 1899; A system of mineralogy. 1914.
Davies	Davies, D. C. A treatise on metalliferous minerals and mining. 1880. (Includes a glossary.)
du Pont	E. I. du Pont de Nemours & Co. High explosives, their manufacture storage, handling and use. 1915. (Includes a glossary of terms used in the explosives industry.)
Duryee	Duryee, S. Nevada prospector's guide. 1906. (Includes a glossary.)
Dwight	Dwight, Arthur S. Glossary of Spanish-American mining and metallurgical terms. Trans. Am. Inst. Min. Eng., vol. 33, 1903.
Egleston	Egleston, Thomas. The metallurgy of silver, gold, and mercury in the United States. 1887. (Includes a glossary.)
Emmons	Emmons, Ebenezer. Manual of geology. 1860. (Includes a glossary.)
Farrell	Farrell, J. H., and Moses, A. J. Practical field geology. 1912. (Includes a glossary.)
Fulton	Fulton, Charles H. The Cyanide process in the Black Hills of South Dakota. Bull. 5 South Dakota School of Mines. 1902.

Quoted in glossary as—	Name of author and publication.
George	George, R. D. Common minerals and rocks, their occurrence and use, Bull. 6, Colorado Geol. Survey, 1913. (Includes a glossary.)
Gillette	Gillette, H. P. Handbook of rock excavation. 1907.
Goesel	Goesel, J. G. Minerals and metals. 1906.
Greene	Greene, Homer. Coal and the coal mines. 1889. (Includes a glossary.)
Greenwell	Greenwell, Allan, and Elsden, J. V. Practical stone quarrying. 1913.
Greenwell, G. C	Greenwell, G. C. A glossary of terms used in the coal trade of Northumberland and Durham. 3d ed. 1888.
Gresley	Gresley, William S. A glossary of terms used in coal mining. 1883.
Halse	Halse, Edward. A dictionary of Spanish, Spanish-American, Portuguese, and Portuguese-American mining, metallurgical and allied terms. 2d ed. 1914.
Hanks	Hanks, Henry G. Second report of the State mineralogist of California from December 1, 1880, to October 1, 1882. (Includes a glossary.)
Hargis	Hargis, A. D. Seventh annual report of the Bureau of Labor, Statistics and Mines of the State of Tennessee, 1897. (Includes a glossary.) Eighth annual report of the Bureau of Labor, Statistics and Mines of the State of Tennessee. 1898. (Includes a glossary.)
Harr	Harr, D. M., and Spruce, M. F. Annual reports of the State inspectors of mines for the first and second districts of the State of West Virginia for the year ended June 30, 1891. (Includes a glossary.)
Hibbard	Hibbard, Henry D. Manufacture and uses of alloy steels, Bull. 100, U. S. Bur. Mines, 1915.
Hitchcock	Hitchcock, Edward. Report on the geology of Vermont. Vol. 2. 1861. (Includes a glossary.)
Hofman	Hofman, H. O. The metallurgy of lead. 6th ed. 1901.
Hooson	Hooson, William. The miners' dictionary. 1747.
Hoover, H. C	Hoover, Herbert C. Principles of mining. 1909.
Hoover, T. J	Hoover, T. J. Concentrating ores by flotation. 3d ed. 1916.
Humble	Humble, William. Dictionary of geology and mineralogy. 1840.
Hunt	Hunt, Robert. British mining, a treatise on the metalliferous mines of the United Kingdom. 1884. (Includes a glossary.)
Iddings	Iddings, J. P. Igneous Rocks. Vol. 1, 1909–13; Rock Minerals, 1911.
Ihlseng	Ihlseng, M. C. A manual of mining. 3d. ed. 1904. (Includes a glossary.)
Ingalls	Ingalls, Walter Renton. The Metallurgy of zinc and cadmium. 1st ed. 1903.
Jackson	Jackson, Charles T. Final report of the geology and mineralogy of the State of New Hampshire. 1844. (Includes a glossary.)
Kemp	Kemp, James Furman. Handbook of rocks. 1904. (Includes a glossary.)
La Forge	Definitions furnished by L. La Forge, geologist, U. S. Geol. Surv.
Lahee	Lahee, F. H. Field geology. 1916.
Lawver	Lawver, W. P. Report of the Director of the Mint. 1883. (Includes a glossary of mining terms.)
Leith	Leith, Charles K. Structural geology. 1913.
Liddell	Liddell, Donald M. The metallurgists' and chemists' handbook. 1916.
Lindgren	Lindgren, Waldemar. Mineral deposits. 1915.
Lock	Lock, Alfred G. Gold, its occurrence and extraction. 1882. (Includes a glossary.)
Lock, C. G. W	Lock, C. G. Warnford. Practical gold mining. 1889.
Lowe	Lowe, E. N. Mississippi, its geology, geography, soils and mineral resources. Bull. 12, Miss. State Geol. Survey, 1915. (Includes a glossary.)
Lucas	Lucas, Frederick. Spanish-English dictionary of mining terms. 1905.
Luquer	Luquer, L. M. Minerals in rock sections. 1908.
McNeil	McNeil, John, State Inspector of Mines. First annual report to the Governor of the State of Colorado for the year ending July 31, 1884. (Includes a glossary.)
Mander	Mander, James. The Derbyshire miners' glossary. 1824.
Megraw	Megraw, Herbert A. The flotation process. 1916.
Meinzer	Meinzer, Oscar E. Glossary of terms pertaining to ground water and related subjects. 1918.
Merrill	Merrill, George P. Stones for building and decoration. 1910. (Includes a glossary.)
Milford	Milford, Philip. Pocket dictionary of mining terms. 1888. (Includes a glossary.)
Miller	Miller, G. W. Field book of practical mineralogy. 1901.
Min. and Sci. Press	Glossary of flotation. *Mining and Scientific Press.* February 12, 1916.

Quoted in glossary as—	Name of author and publication.
Min. Jour	English and foreign mining glossary. 3d ed. Published by the *Mining Journal*, London. 1871.
Mitzakis	Mitzakis, Marcel. The oil encyclopedia; supplement to the Petroleum World. 1912–1913.
Morine	Morine, A. B. Mining law of Canada. 1909. (Includes a glossary.)
Morrison	Morrison, Robert S. Mining rights. 14th ed. 1910. (Includes a glossary.)
Moses	Moses, A. J., and Parsons, C. L. Mineralogy, crystallography and blowpipe analysis. Revised ed. 1904.
Nat. Tube Co	National Tube Co. Book of standards. Containing tables and useful information pertainng to tubular goods as manufactured by the National Tube Co. 1915–1916. (Includes a glossary.)
Nicolls	Nicolls, William J. Coal catechism. 1906.
Oldham	Oldham, Thomas. Geological glossary. 1879.
Ore Dep	Kemp, James Furman. The ore deposits of the United States and Canada. 3rd ed. 1900.
Osborn	Osborn, H. S. Prospector's field-book and guide. 1910. (Includes a glossary.)
Page	Page, David. Handbook of geplogical terms, geology, and physical geography. 1865.
Perkins	Perkins, George H. Report of the State Geologist on the mineral industries and geology of certain areas of Vermont, 1909–1910 (Includes a glossary of scientific and quarry terms); Report of the State Geologist on the mineral industries and geology of Vermont, 1913–1914. (Includes a glossary of technical terms.)
Peters	Peters, Jr., E. D. Modern copper smelting. 11th ed. 1901.
Pfordte	Pfordte, Otto F. The Cerro de Pasco mining industry. Trans. Amer. Inst. Min. Eng. Vol. 24. 1895.
Pike	Pike Manufacturing Co. Sharpening stones, history and development. 1915. (Includes a glossary.)
Posepny	Posepny, Franz. The genesis of ore deposits. 1901.
Power	Power, F. Danvers. A glossary of terms used in mining geology. Australasian Inst. Min. Eng., 1895; Coal fields and collieries of Australia, 1912 (Includes a glossary.)
Pryce	Pryce, William. Mineralogia cornubiensis, 1778. (Includes a glossary.)
Ralston	Ralston, O. C. Flotation processes for concentrating ores. Press Bull. U. S. Bur. Mines. 1916.
Ransome	Ransome, F. L. The copper deposits of Ray and Miami, Arizona. U. S. Geol. Survey, Prof. Paper 115. (In course of publication.)
Raymond	Raymond, Rossiter W. Glossary. Trans. Amer. Inst. Min. Eng. Vol. 9, 1881.
Redmayne	Redmayne, R. A. S. Colliery working and management. 3rd ed. 1912. (Includes a glossary.)
Redwood	Redwood, B., and Eastlake, A. W. Petroleum technologists' pocket book. 1915.
Richards	Richards, Robert H. Ore dressing. Vols. 1, 2, 3, 4. 1909.
Richardson	Richardson, D. A. Manual of Mexican law. 1910. (Includes a glossary.)
Rickard	Rickard, T. A. A guide to technical writing. 1910. Stamp-milling of gold ores. 2nd ed. 1897. (Includes a glossary of stamp-milling terms.) Rickard, T. A., and Ralston, O. C. Flotation. 1917. (Includes a glossary.)
Ricketts	Ricketts, P. de P., and Miller, E. H. Notes on assaying. 1897.
Ries	Ries, Heinrich. Building stones and clay products. 1912. (Includes a glossary.)
Roberts	Roberts, George. An etymological and explanatory dictionary of terms and language of geology. 1839.
Rockwell	Rockwell, John A. Spanish and Mexican law. 1851. (Includes a glossary.)
Rogers, A. F	Rogers, A. F. Introduction to the study of minerals. 1912.
Rogers	Rogers, W. B. Geology of the Virginias. Virginia Geol. Survey Report, 1840. (Includes a glossary of geological and other scientific terms.)
Roscoe	Roscoe, H. E., and Schorlemmer, C. Treatise on chemistry. 1911. Vol. 1. The nonmetallic elements.
Roy	Roy, Andrew. Ninth annual report of the State inspector of mines for Ohio. 1883. (Includes a glossary.)
Roy. Com	Report of the Royal commission on mineral resources of Ontario, and measures for their development. 1890. (Includes a glossary of geological and mining terms.)

Quoted in glossary as—	Name of author and publication.
St. John	St. John, Samuel. Elements of geology. 12th ed. 1872. (Includes a glossary.)
Sanders	Sanders, Wilbur E., Parlee, N. W., and MacDonald, Bernard. Mine timbering. 1907.
Shamel	Shamel, Charles H. Mining, mineral and geological law. 1907.
Simms	Simms, Frederick W. Practical tunnelling. 4th ed. 1896. (Includes a glossary.)
Skinner	Skinner, Walter R. The mining manual, 1912 (includes a glossary); The mining manual and mining year book, 1916 (includes a glossary).
kinner (with page reference)	Skinner, Ernest B. The mathematical theory of investment. 1913.
Sloan	Sloan, Earl. Catalogue of the mineral localities of South Carolina. South Carolina Geol. Survey. Ser. 4, Bull. 2. 1908. (Includes a glossary.)
Standard	Standard dictionary, twentieth century edition. 1910.
Steel	Steel, A. A. Coal mining in Arkansas. Geol. Survey of Arkansas. Pt. I. 1910. (Includes a glossary of coal-mining terms.)
Stewart	Stewart, John T. Fourth report of the State inspector of coal mines of Kansas for the year ending Dec. 31, 1890. (Includes a glossary of mining terms.) This glossary was reprinted in the sixth and tenth reports, 1893 and 1897, respectively.
Thompson	Thompson, Maurice. Indiana department of geology and natural history, 15th annual report. 1886. (Includes a glossary.)
Tieman	Tieman, Hugh P. Iron and steel. 1st ed. 1910.
Tucker	Tucker, H. J. Annual report of the State inspector of mines to the Governor of the State of West Virginia for the year ending June 30, 1888. (Includes a glossary.)
U. S. Geol. Surv	United States Geological Survey. Useful minerals of the United States Bull. 585. 1914.
U. S. Min. Stat	Thompson, Joseph W. United States mining statutes annotated. Bull. 94, U. S. Bur. Mines. 1915.
Ure	Ure, Andrew. A dictionary of arts, manufactures, and mines. 1871.
Vel	Velázquez de la Cadena, Mariano. A new pronouncing dictionary of the Spanish and English languages. 1903.
Vogt	Vogt, J. H. L., Beyschlag, F. H. A., and Krusch, J. P. Ore deposits. 1914–1916.
Watson	Watson, Thomas L., and Ries, Heinrich. Engineering geology. 1915.
Weatherbe	Weatherbe, D'Arcy. Dredging for gold in California. 1st ed. 1907.
Webster	Webster's New International Dictionary of the English Language. 1916.
Weed	Weed, Walter Harvey. The mines handbook and copper handbook. Vol. 12, 1916, and Vol. 13, 1918. (Includes a glossary.)
White	White, Charles A. Report of the geological survey of the State of Iowa. 1870. (Includes a glossary.)
Whitney	Whitney, J. D., and Foster, J. W. Report on the geology and topography of a portion of the Lake Superior land district in the State of Michigan. 1850. (Includes a glossary.)
Willcox	Willcox, F. H. Occupational hazzards at blast-furnace plants and accident prevention. Bull. 140, U. S. Bur. Mines. 1917. (Includes a glossary.) Blast-furnace breakouts, explosions, and slips, and methods of prevention. Bull. 130, U. S. Bur. Mines. 1917. (Includes a glossary.)
Winchell	Winchell, N. H. The iron ores of Minnesota. Geological and natural history survey of Minnesota. Bull. 6. 1891. (Includes a glossary of mining and geological terms.)
Woodson	Woodson, C. C. Fifth annual report of the State mine inspector of the State of Missouri, June 30, 1891. (Includes a glossary of mining terms used in Missouri.)
Worthen	Worthen, A. H. Geology. Vol. 1. Geological survey of Illinois. 1866. (Includes a glossary.)
Young	Young, George J. Nomenclature of mining methods. *Engineering and Mining Journal*. July 22, 1916.

GEOGRAPHICAL ABBREVIATIONS USED.

The accompanying list of abbreviations shows the localities in which certain words are in common use or whence they may have been derived. These abbreviations are used throughout the text.

Arg	Argentina.
Ark	Arkansas, U. S. A.
Aust	Australia.
B. C	British Columbia, Canada.
Belg	Belgium.
Bol	Bolivia.
Braz	Brazil.
Brist	Bristol coal field, England.
Can	Dominion of Canada.
Cent. Am	Central America.
Ches	Cheshire, England.
Clev	Cleveland iron district, England.
Colom	United States of Colombia.
Corn	Cornwall, England.
Cumb	Cumberland coal field, England.
Derb	Derbyshire coal field, England.
Dev	Devonshire, England.
E. Ind	East Indies.
Eng	England.
Forest of Dean	Forest of Dean coal field, England.
Fr	French.
Ger	German.
Gt. Brit	Great Britain.
Glouc	Gloucestershire coal field. England.
Hid	Hidalgo, Mexico.
Hind	Hindustan.
Ill	Illinois, U. S. A.
Ir	Ireland.
It	Italian.
L	Latin.
Lanc	Lancashire coal field, England.
Leic	Leicestershire, England.
Mex	Mexico.
Mid	Midland coal field, England.
Newc	Newcastle coal field, England.
N. S. W	New South Wales, Australia.
N. Z	New Zealand.
No. of Eng	North of England.
No. Staff	North Staffordshire coal field, England.
No. Wales	North Wales, England.
Northumb	Northumberland coal field, England.
Pac	Pacific Coast, U. S. A.
Pat	Patagonia, South America.
Penn	Pennsylvania, U. S. A.
Port	Portuguese (mostly in Brazil).
Prov	Provincial, United States, unless otherwise specified.
Pr	Prussian.
Russ	Russia.
Scot	Scotland.
Shrop	Shropshire, England.
So. Afr	South Africa.
So. Am	South America.
So. Staff	South Staffordshire, England.
So. Wales	South Wales, England.
Som	Somerset, England.
Sp	Spanish origin but not necessarily used in Spain.
Sp. Am	Spanish America.
Staff	Staffordshire, England.
Straits Set	Straits Settlement.
Sw	Swedish.
Trans	Transvaal, South Africa.
U. S	United States of America.
Venez	Venezuela.
W. Afr	West Africa.
War	Warwickshire, England.
Wis	Wisconsin, U. S. A.
York	Yorkshire, England.

A.

Aa. A Hawaiian word especially introduced into American usage to describe jagged, scoriaceous lava flows. It is contrasted with *pahoehoe.* (Kemp)

Abaco (Mex.). A stone trough used to wash minerals. (Dwight)

Abajador (Mex.). The workman in charge of tools furnished to miners underground. (Dwight). A stable boy in mines. (Vel.)

Abajo! (Mex.). Lower! a signal for lowering a bucket or cage. (Halse)

Abandonment. The act of abandoning; relinquishment. (Webster)
Abandonment of a mining claim may be by failure to perform work; by conveyance; by absence, and by lapse of time. The abandonment of a mining claim is a question of intent. (Richen *v.* Davis, 148 Pacific, p. 1132;—1915.)
To constitute an abandonment of a mining claim, there must be a going away, and a relinquishment of rights, with the intention never to return, and with a voluntary and independent purpose to surrender the location or claim to the next comer. (Peachy *v.* Frisco Gold Mines Co., 204 Federal, p. 668, and Harkrader *v.* Carroll, 76 Federal, p. 475). (Min. Stat., pp. 259–262)
Compare Forfeiture.

Abate. In metal working, to lower the temper of. (Standard)

Abatis; Abattis (Leic.). Walls or ranges of rough wood, *e. g.*, cordwood placed crossways to keep the underground roads open for ventilation, etc. (Gresley)

Abbé tube mill. A gear-driven tube mill supported on a pair of riding rings and distinguished by an Archimedes spiral, through which the ore is fed and discharged. Grinding is effected by flint pebbles fed into mill. *See* Ball mill. (Liddell)

Abertura de galèría (Sp.). 1. Tunneling; driving. (Lucas)
2. The reopening of a vein. (Halse)

Abigarrado (Mex.). Variegated in color (applied to minerals). (Dwight)

Ablation. 1. The formation of residual deposits by the washing away of loose or soluble minerals. (Kemp)
2. The wearing away of rocks, or the surface melting of glaciers. (Standard)

Abnormal. Not conformable to rule or system; irregular. (Webster)

Abra (Mex.). Open fissure or cavity in the rocks. (Dwight)

Abradant. An abrading substance, as emery, sand, etc., used in grinding and polishing (Standard). *See* Abrasives.

Abrade. 1. To rub or wear off; to waste or wear away by friction, as to abrade rocks. (Webster)
2. As used in the sharpening-stone industry; abrading means cutting, as the steel composing the tool is cut away rather than worn away. (Pike)

Abrasion. 1. The act or process of rubbing or wearing away; as the abrasion of rock or earth by glaciers. 2. The resulting injury or other effects of abrading; an abraided place; as the abrasion left by glacial action. (Standard)

Abrasive. A substance used for abrading, as for grinding and polishing. The principal substances used as abrasives are: Burstone, corundum, emery, garnet, grindstone, infusorial earth, millstone, novaculite, oilstone, pumice, scythestone, tripoli, volcanic ash, and whetstone. Certain furnace products, as carborundum, etc., are also used as abrasives.

Abrevadero (Sp. Am.). A mine, the openings of which are filled with water at the time of working. (Lucas)

Abridura (Mex.). Enlargement of a space, so that miners may work freely (Dwight). A synonym for Abertura.

Abrigo (Mex.). 1. The width of a vein. (Dwight)
2. *A. del carbón* (Peru). An argillaceous rock forming the roof and floor of coal seams. (Halse)

Abrir (Sp.). To drive or open up, as a drift, gallery, tunnel, or to sink, as a shaft. (Halse)

Abronceado; Abronziado (Sp.). Yellow copper ore; sulphides. (Lucas)

Abronzado (Mex.). Chalcopyrite. (Dwight)

Absarokite. A general name given by Iddings to a group of igneous rocks in the Absaroka Range, in the eastern portion of the Yellowstone Park. They have porphyritic texture with phenocrysts of olivine and augite in a groundmass, that is either glassy or contains leucite, orthoclase or plagioclase, one or several. They are chemically, SiO_2, 46–52; Al_2O_3, 9–12; MgO, 8–13; alkalies, 5–6.3, with potash in excess. The name is of greatest significance when taken in connection with shoshonite and banakite. (Kemp)

Absolute atmosphere. An absolute unit of pressure, equal to one million times the pressure produced on a square centimeter by the force of one dyne.

Absolute pressure. That measure of pressure which includes atmospheric pressure. Pressure expressed in absolute measure, commonly in absolute atmospheres (Century). Pressure reckoned from a vacuum.

Absolute temperature. The temperature measured from the absolute zero of temperature on the absolute or thermodynamic scale of temperature. This scale differs slightly from that of an air thermometer, and by the absolute temperature is often meant the temperature on the latter scale above the absolute zero. (Century)

Absolute zero. That point of temperature at which a body would be wholly deprived of heat, and at which a perfect gas would exert no pressure; supposed to be —273° C., —461° F., or —219° Réaumur; used only on the thermodynamic scale. (Standard)

Absorb. To drink in, to suck up, as a liquid by a solid like a sponge or fuller's earth (Rickard). A term used in the flotation process.

Absorbing well. An excavation in the earth through which surface water finds its way to a permeable stratum and is drained away. (Standard). A cesspool.

Absorption. 1. The act or process of absorbing, imbibing, swallowing, or engulfing mechanically. 2. A taking in or reception by molecular or chemical action. (Century)
3. The phenomenon observed when a pleochroic mineral is rotated in plane polarized light. In certain positions the mineral is darker than in others, owing to the absorption of light. (Luquer, p. 26)

Absorption of gases. The action of some solids and liquids in taking up or absorbing gases. (Century)

Abstract. To absorb (the waters of a neighboring stream) by abstraction: said of watercourses. (Standard)

Abstraction. In geology, the withdrawal of a stream from a lower portion of its course by an adjoining stream having more rapid corrosive action. (Standard)

Abstrich (Ger.). The black or greenish-brown mass (black litharge) appearing upon the bath of work-lead early in the cupeling process, and gradually, as the process advances, giving way to pure litharge. (Raymond)

Abtheilung (Ger.). A fixed part or district of a mine assigned to the care of a fireman or deputy. (Gresley)

Abysmal sea. That part of the sea which occupies the ocean basins proper. (Chamberlin, vol. 1, p. 311)

Abyssal rocks. Plutonic, or deep-seated igneous rocks. The word was suggested and has been especially used by W. C. Brögger. (Kemp)

Abzug (Ger.). The first scum appearing (before the *abstrich*) on the surface of molten lead. (Raymond)

Acadialite. A reddish variety of chabazite. (Dana)

Acampanar (Sp.). To remove the overburden down to the surface of the auriferous alluvium. (Lucas)

Acanthite. A silver sulphide, Ag_2S. It contains 87 per cent silver. (U. S. Geol. Surv.)

Acarreador (Mex.). A wood carrier. (Halse)

Acarreo (Sp.). Carriage or conveyance of minerals. (Halse)

Acarreos (Mex.). 1. Float rock. (Dwight)
2. Drift composed of rounded rocks, pebbles and gravel. (Halse)

Accessory minerals. Those mineral constituents of a rock that occur in such small amounts that they are disregarded in its classification and definition. Opposed to essential minerals. (La Forge)

Acción (Mex.). Share in a mine, or other enterprise, usually 100 to the *barra*. Right or ground of action in a suit. (Dwight)

Accionista (Mex.). Shareholder. (Dwight)

Accompt. 1. (Corn.) Account day; the usual settling day. 2. The place of meeting, or account house. (Davies)

Accretion. The process by which inorganic bodies grow larger, by the addition of fresh particles to the outside.

Accretion hypothesis. Any hypothesis of the origin of the earth which assumes that it has grown from a small nucleus by the gradual addition of solid bodies, such as meteorites, asteroids, or planetesimals, formerly revolving about the sun in independent orbits, but eventually drawn by gravitation to the earth and incorporated with it. (La Forge)

Aceite (Sp.). Oil, whether of vegetal or mineral origin (Halse). *See* Petróleo.

Aceitera (Mex.). An oil cup. (Dwight)

Acendrada (Peru). A whitish marl used in making cupelling furnaces. (Halse)

Acendrar (Peru). To refine. (Dwight)

Acequía (Mex.). Canal or ditch. (Dwight)

Acequiero (Sp.). A man in charge of a ditch; a peón who makes a ditch. (Halse)

Acerado (Mex.). Gray copper ore; any gray steely ore. (Dwight)

Aceriate (Fr.). To convert into steel, as by cementation. (Webster)

Acerillo (Peru). Finely crystalline galena showing steely fracture.

Acero (Mex.). Steel; *A. colado*, cast steel. (Dwight)

Acetone. An inflammable liquid (C_3H_6O) with a biting taste, obtained by the destructive distillation of acetates and various organic compounds. It is used in making chloroform and as a solvent for fats, camphor, and resins. (Standard)

Acetylene. The most brilliant illuminating gas (C_2H_2); it may be produced synthetically from its elements by incomplete combustion of coal gas, and commercially from calcium acetylid (CaC_2) (Calcium carbide) by the action of water (Standard). Used much for underground lighting.

Achaparera (Mex.). Long-handled adze. (Dwight)

Achicador; Achichinque (Mex.). Carrier of water. *See also* Achicar. (Dwight)

Achicar (Mex.). To remove water from a mine, generally by carrying it out in bags or buckets. (Dwight)

Achirite. Same as Dioptase. (Standard)

Achroite. A colorless variety of tourmaline. (A. F. Rogers)

Acicular. Needle-shaped; slender, like a needle or bristle, as some leaves or crystals. (Webster)

Acid. 1. Sour, sharp or biting to the taste. Having acid-forming constituents present in excess of the proportion required to form a neutral or normal compound. (Webster)
2. In modern chemistry an acid may be regarded as a salt of hydrogen, or as a compound, containing one or more atoms of hydrogen which may be displaced by a metal, or by a radical possessing to a certain extent metallic functions. (Century)

Acid egg. A cylindrical cistern from which acid is forced by compressed air, as in the manufacture of sulphuric acid. (Webster)

Acidic. A descriptive term applied to those igneous rocks that contain more than 65 per cent SiO_2 as contrasted with intermediate and basic. (La Forge)

Ácido (Sp.). Acid; *A. carbónico*, carbonic acid; *A. negro* (Mex.) in the patio process, spent mother liquor from the crystallizing vats. (Halse)

Acid process. A method of making steel or homogeneous iron in a Bessemer converter or open-hearth furnace having an acid, as opposed to a basic lining. (Standard)

Acid rock. A term rather loosely used in lithology, generally to mean one of the following: 1. An igneous rock containing 60 per cent or more of silica, free or combined, in this sense being nearly equivalent to *acidic*. 2. An igneous rock in which minerals high in silica, such as quartz, alkaline feldspar, and muscovite, are dominant. 3. Very loosely, an igneous rock composed dominantly of light-colored minerals. In all three senses contrasted with *basic*.

The term is misleading and undesirable and is going out of use. As used in the first sense it is being replaced by *silicic* or *persilicic*, and as used in the second sense it should be replaced by *felsic* or by a term denoting the dominant mineral. (La Forge) *See also* Acidic.

Acid salt. A salt in which the replaceable hydrogen of the corresponding acid is only partly exchanged for metallic atoms or basic radicals. (Webster)

Acid steel. Steel manufactured by a process in which the converter or open hearth is lined with siliceous material (Standard). *See also* Acid process.

Acidulae. Cold mineral waters, especially those impregnated with carbonic acid. (Webster)

Acidulous water. Mineral water charged naturally with carbon dioxide (Standard). Also applied to waters containing sulphur compounds, especially sulphates.

Aciérage (Fr.). The process of electroplating a metal with iron or steel. (Standard)

Aciéral. An alloy containing 92 to 97 per cent aluminum and offered as a metal of strength and lightness and noncorrosive, suitable for use in the construction of automobiles, aircraft, military equipment, railroad cars, valves, hardware, etc. It was discovered by M. de Montby. It is suitable for the manufacture of helmets. It is silver white, and has a specific gravity of 2.82 and a melting point of 1,382° F. Its tensile strength in castings is given as 30,000 pounds per square inch, and in rods and sheets as 28,000 to 64,000 pounds and heat-treated as upward of 70,000 pounds per square inch. (Min. and Sci. Press, June 2, 1917)

Acinose. Granulated; like seeds; applied to mineral texture. (Power)

Aclarar (Sp.). To clear the tuyère by passing a pointed bar through the bustle pipe. (Halse)

Aclinic. Having no inclination or dip; situated where the compass needle does not dip, as the aclinic line, or magnetic equator. (Webster)

Acmite. A brown or green silicate of sodium and iron belonging to the pyroxene group. Essentially $NaFe(SiO_3)_2$ (Dana). *See also* Aegirite.

Acmite-trachyte. A trachyte whose pyroxene is acmite or aegirite and whose feldspar is anorthoclase. It therefore differs from normal trachyte in its prevailing soda instead of potash. The acmite-trachytes are intermediate between the true trachytes and the phonolites. They were first described from the Azores and have also been found in the Crazy Mountains, Mont. (Kemp)

Acomodana (Peru). Ore deposits. (Dwight)

Acopios (Sp.). Waste heaps or dumps, (Lucas)

Acquia Creek beds. An obsolete term for Potomac Series.

Acre. 1. A measure of superficial area, usually of land. The statute acre of the United States and England contains 43,560 square feet (4,840 square yards or 160 square rods). The so-called Scotch acre contains about 6,150 square yards and the Irish acre 7,840. There are various special or local acres in England (as in Cheshire or among the hop-growers), varying from 440 to more than 10,000 square yards. (Standard)

2. (Quebec) A linear measure equal to the square root of 43,560, being approximately 208.7 ft.

Acre (Sp.). Sour; acrimonious. (Vel.)

Acreage rent. Royalty or rent paid by the lessee for working and disposing of minerals at the rate of so much per acre. (Gresley)

Acre-foot. The amount of water required to cover 1 acre to a depth of 1 foot; equal to 43,560 cubic feet. Also used in estimating coal in

place; thus a horizontal bed of coal 5 feet thick covering an area of 1 acre would contain 5 acre-feet of coal.

A-cropping (Scot.). Toward the outcrop. (Barrowman)

Acrotomous. In mineralogy, having a cleavage parallel with the base or top. (Standard)

Actinolite. A light-green calcium-magnesium-iron amphibole, $3Mg(Fe)O.CaO.4SiO_2$. (U. S. Geol. Surv.) *See also* Asbestos.

Activar (Mex.). To quicken the chemical reactions in the *torta*. (Dwight)

Actual horsepower. The horsepower really developed, as proved by trial. (Standard)

Actual power. *See* Actual horsepower.

Acueducto (Sp.). Aqueduct; conduit. (Halse)

Acullico (Peru). Resting hour. (Dwight)

Acuñación (Sp.). Coining, as of money. (Min. Jour.)

Acuñador (Sp.). One who coins money. (Crofutt)

Acuñar (Mex.). To coin; to wedge. (Dwight)

Acuoso (Sp.). Watery; aqueous. (Halse)

Acute bisectrix. The line which bisects the acute angle of the optic axes of biaxial minerals. (Dana)

Aczolling. The treatment of timber with a mixture of metallic ammoniates and an antiseptic acid (derivative of phenol or naphthalene). (Liddell)

Adamant. A stone imagined by some to be of impenetrable hardness; a name given to the diamond and other substances of extreme hardness; but in modern mineralogy it has no technical significance. (Webster)

Adamantine. 1. Like a diamond in hardness or luster. 2. Made of, or having the qualities of adamant. 3. Crystallized boron (Webster). 4. A commercial term for chilled steel shot used in well drilling.

Adamantine drill; Shot drill. A core drill employed in rotary drilling in very hard ground. A steel-cylinder bit with a diagonal slot cut in the lower edge is attached to a core barrel and a small quantity of chilled steel shot fed in with the water at intervals. These find their way beneath the bit and wear away the rock as the bit rotates. A core from 4 to 30 inches in diameter is obtained.

Adamantine spar. A variety of corundum, Al_2O_3. (Dana)

Adamellite. A name proposed by Cathrein as a substitute for tonalite, on the ground that tonalite means a hornblende-biotite granite, rich in plagioclase, whereas adamellite, which better describes the rocks at the Tyrolese locality, means a quartz-hornblende-mica-diorite with granitic affinities. Adamellite emphasizes the dioritic characters; tonalite, the granitic. The name is derived from Monte Adamello, near Meran, Tyrol, the locality of tonalite. (Kemp)

Adamic earth (Eng.). A kind of red clay. (Humble)

Adamite. A honey-yellow hydrous zinc arsenate, $Zn_3As_2O_8Zn(OH)_2$, crystallizing in the orthorhombic system. (Dana)

Adamsite. A greenish-black variety of common mica. (Standard)

Adarce. 1. A calcareous sediment of some mineral springs. (Standard) 2. A soft and porous saltish concretion on reeds and grass in marshy grounds in Galatia. (Webster)

Adarme (Peru). A measure of weight equal to 1.8 grams. (Pfordte)

Addle; Adle (No. of Eng.). To earn by labor. (Gresley)

Addling. 1. (No. of Eng.) The act of earning by labor. 2. In the plural that which is earned; earnings. Also written Adlings. (Century)

Adelgazar (Sp.). 1. To thin or rob pillars. 2. To separate gold-bearing concentrate from sand and small stones in order to facilitate the final washing. (Halse)

Adelpholite. A greasy yellow to black iron and manganese columbate that crystallizes in the tetragonal system, and is closely related to tapiolite. (Standard)

Adema, or Ademe. (Sp.). A piece of timber used in supporting mine workings; a prop, shore, or strut. (Halse)

Ademador (Sp.) Mine carpenter, or timberman. (Halse)

Ademar (Mex.). 1. To timber. (Dwight)
2. To make the sides of an artificial drain or ditch. (Halse)

Ademe (Mex.). Timber in mines; timbering in general. (Dwight). *See* Adema.

Adeps petrolei. A form of petrolatum.

Ader wax. Crude ozocerite in leafy masses. (Bacon)

Adhesion. A molecular force by which bodies of matter are caused to stick together. (Rickard). A term used in flotation processes.

Adhesive slate. A very absorbent slate that adheres to the tongue if touched by it. (Standard)

Adinole. A dense felsitic rock composed chiefly of an aggregate of excessively fine quartz and albite crystals, such that on analysis the percentage of soda may reach 10. Actinolite and other minerals are subordinate. Adinoles occur as contact rocks, associated with diabase intrusions and are produced by them from schists (*Compare* Spilosite and Desmite). They also constitute individual beds in metamorphic series (*Compare* Porphyroid, Hälleflinta). The name was first given by Beudant but has been especially revived by Lossen. (Kemp)

Adipocere. A light-colored fatty substance, composed of palmitic and other fatty acids. Not to be confused with the mineral adipocire which is a native paraffin. (Standard)

Adipocerite; Adipocire. A synonym for Hatchettie. (Dana)

A-dipping (Scot.). Toward the dip. (Barrowman)

Adit. 1. A nearly horizontal passage from the surface by which a mine is entered and unwatered. In the United States an adit is usually called a tunnel, though the latter, strictly speaking, passes entirely through a hill and is open at both ends (Raymond). Frequently also called Drift, or Adit level.
2. As used in the Colorado statutes it may apply to a cut either open or under cover, or open in part and under cover in part, dependent on the nature of the ground. (Electro-Magnetic Min. & Dev. Co. *v.* Van Auken, 9 Colo., p. 207; 11 Pacific, p. 80.)

Adit level. *See* Adit.

Adlings. *See* Addling.

Administración (Sp.). Management. (Hanks)

Administrador (Mex.). Manager of a mine. (Dwight)

Adobe. 1. (Sp.). A sun-dried brick; often shortened to *adob* and even *'dobe.* 2. The mixed earth or clay of which such bricks are made. 3. In mining, a brick of pulverized ore mixed with clay, as in quicksilver metallurgy. (Standard)
4. The Mexican silver dollar. *See also* Peso.
5. *See* Mudcap.

Adolescent river. In geology, a river in the second stage of a new drainage system, having a well-cut channel that may reach base-level at its mouth, and a graded bed, and having largely obliterated the lakes and waterfalls of its youthful stage. Its small tributaries may still be in the youthful stage. (Standard)

Adsorb. To condense and hold a gas on the surface of a solid, particularly metals. Also to hold a mineral particle within a liquid interface. From L. *ad*, to, and *sorbeo*, suck in. (Rickard)

Adsorption. The adhesion of the molecules of gases or dissolved substances to the surfaces of solid bodies, resulting in a relatively high concentration of the gas or solution at the place of contact. (Webster)

Adular; adularia. A pure or nearly pure potassium-aluminum silicate; a variety of orthoclase, $KAlSi_3O_8$. (Dana)

Advance workings. Mine workings that are being advanced into the solid, and from which no pillars are being removed.

Advanced gallery. A small heading driven in advance of the main tunnel in tunnel excavation. (Simms)

Adventive crater. A volcanic crater opened on the flank of a great cone. (Daly, p. 144)

Adventure (Corn.). A mining enterprise. (Davies)

Adventurers (Eng.). Shareholders or partners in a mining enterprise; in Cornwall, cost-book partners. (Raymond)

Adverse. To oppose the granting of a patent to a mining claim. (U. S. Min. Stat., pp. 370–385, 548–550, 569–570, 606.)

Advertised out. A term used to express the result of the action of a joint owner of a mining claim who by proper notices causes the interest of his coöwner to be forfeited for failure to perform his share of the assessment work.

Aegirite. *See* Acmite; Wurtzilite. Also written Aegerine.

The name of this soda-pyroxene is often prefixed to normal rock names because of its presence, as for instance, aegirite-granite, aegirite-trachyte. Microscopic study has shown that the mineral is much more widely distributed than was formerly appreciated. (Kemp)

Aeolian. An adjective applied to rocks formed of wind-borne sands. Some such aeolian sands yield large quantities of oil; practically all the big Baku spouters have been obtained from sands of this class. (Mitzakis) *See also* Eolian.

Aeolian rocks. Fragmental rocks, composed of wind-drifted materials. The drift-sand rock, the common building stone of Bermuda, is a good example. (Merrill)

Aeonite. *See* Wurtzilite.

Aérage (Fr.). Ventilation. (Chance)

Aerate. 1. To expose to the action of the air; supply or charge with air. 2. To charge with carbon dioxide or other gas, as soda water. (Standard)

Aerator. 1. An apparatus for charging water with gas under pressure, especially with carbon dioxide. 2. Any contrivance for supplying a stream of air or gas, as for fumigating, destroying fungi, insects, etc. (Standard)

Aerial. Relating to the air or atmosphere. "Subaerial" is applied to phenomena occurring under the atmosphere; "subaqueous" to phenomena occurring under water. (Power)

Aerial railroad. A system of cables from which to suspend cars or buckets, as in transporting or hoisting ore. (Standard) *See also* Aerial tramway.

Aerial spud. A cable for moving and anchoring a dredge.

Aerial tramway. A system for the transportation of material, as ore or rock, in buckets suspended from pulleys or grooved wheels that run on a cable, usually stationary. A moving or traction rope is attached to the buckets and may be operated by either gravity or other power, as determined by topographic features or other conditions.

Aerify. 1. To change into a gaseous form. (Standard)
2. To infuse or force air into; to combine with air. (Webster)

Aerinite. A bright-blue earthy variety of fahlunite.

Aerites. A synonym for Metallites.

Aerogene gas. The gas produced by the system of carbureting air devised by Van Vriesland. This system is installed at Breukelen, Holland, for lighting both streets and houses. (Bacon)

Aerohydrous. Inclosing a liquid in the pores or cavities: said of some minerals. (Standard)

Aerolite. A mass of metallic or other mineral substance which has fallen to the earth through the air. The metallic aerolite consists principally of metallic iron, nickel, and chromium; the nonmetallic aerolite consists of crystalline rocks resembling greenstones; others consist of mixtures of these. A meteorite. (Roy. Com.)

Aerophore. 1. A respirator in the form of a tank which receives the exhalations from the lungs and containing chemicals designed to revive the air, to render it fit for breathing. (Ihlseng)
2. A portable apparatus containing a supply of compressed air for respiration, as for a miner. (Webster)

Aeroplane oil. A white, straight-reduced viscous neutral oil having a gravity of 32¾° to 34° B., a flash-point of 415° F., a fire test of 480° F., a cold test of 20° F., and a viscosity of 185 to 200 Saybolt. (Bacon)

Aerosiderite. A meteorite consisting chiefly of iron, generally nickeliferous, with particles of phosphide of iron, carbon, and hydrocarbons. (Power)

Aerosiderolite. A meteorite that is both metallic and stony. (Standard)

Aerosite. Same as Pyrargyrite. (Standard)

Aerosphere. The atmosphere considered as a spherical shell of gases surrounding the earth. (Standard)

Aerugo. Copper rust; verdigris; especially, green copper coating adhering to old bronzes. (Standard)

Aetite. A nodule consisting of a hard shell of hydrated oxide of iron, within which the yellow oxide becomes progressively softer toward the center, which is sometimes quite empty. (Power)

Affluent. A stream that flows into another; a tributary. (Standard)

Afiladera (Mex.). Whetstone. (Dwight)

Afilar (Mex.). To sharpen (tools). (Dwight)

Afinación (Mex.). 1. Art or process of refining. Refining works. (Dwight) 2. *A. por cristalización*, the Pattinson process. (Halse)

Afinador (Mex.). A refiner (Halse). A synonym for Refinador.

Afinar (Sp.). To refine gold and silver (Halse). A synonym for Refinar.

Afino (Sp.). In tin smelting, melting the ingots in reverberatory furnaces and refining by poling. *A. de cobre*, fusing copper under an oxidizing atmosphere. (Halse)

Aflojadero (Mex.). Soft part of a vein. (Dwight)

Aflojar el canalón (Sp. Am.). To treat the material that has accumulated in the ground sluice, by washing away the lighter and allowing the heavier mineral to settle. (Halse)

Afloramiento (Mex.). Outcrop of vein. (Dwight)

Afrechera (Peru). Finely divided amalgam produced with insufficient mercury. (Dwight)

Afrentar un hilo (Colom.). To make a perpendicular cut in a lode or vein to ascertain its thickness, dip, and strike. (Halse)

A froid (Fr.). In a cold state, *i. e.*, not afterward subjected to the firing process: said of painting and other decoration in ceramics. (Standard)

Afterdamp; Aftergases. The mixture of gases which remain in a mine after a mine fire or an explosion of fire damp. It consists of carbonic acid gas, water vapor (quickly condensed), nitrogen, oxygen, carbon monoxide, and in some cases free hydrogen, but usually consists principally of carbonic acid gas and nitrogen, and is therefore irrespirable. *See also* Black damp.

Aftergases. Gases produced by mine explosions or mine fires.

Agachadero (Mex.). Place in a level where the roof is low. (Dwight)

Against the air. In a direction opposite to that in which the air current moves. To fire shots "against the air," is to fire shots in such an order that the shot firer travels against the air. (Steel)

Agalite. Fibrous talc, pseudomorphous after enstatite. (A. F. Rogers)

Agalmatolite. Essentially a hydrous silicate of aluminum and potassium, corresponding closely to muscovite. A secondary or alteration product. *See also* Pinite (Dana). A soft waxy mineral used for carvings by the Chinese. Also called Lardstone.

Agamasar (Sp.). To make mortar; to cement with mortar. (Halse)

Agaphite. A conchoidal variety of Persian turquoise. (Standard)

Agaric mineral. 1. A soft, light, pulverulent hydrated silicate of magnesium found in Tuscany, from which floating bricks can be made. (Power) 2. A light, chalky deposit of calcium carbonate, sometimes called rock milk, formed in caverns or fissures of limestone. (Webster)

Agate. A variegated waxy quartz in which the colors are in bands, in clouds, or in distinct groups; also, a gem or precious stone made from this mineral. (Standard) A variegated chalcedony.

Agate jasper. An agate consisting of jasper containing veinings of chalcedony. (Dana)

Agate opal. Opalized agate.

Agate ware. 1. An enameled iron or steel ware used for household utensils. Used extensively as table equipment in miners' camps and boarding houses. 2. Pottery, veined and mottled to resemble agate. (Standard)

Agatized wood. *See* Wood, 2.

Age. 1. Any great period of time in the history of the earth or the material universe marked by special phases of physical conditions or organic development; an eon; as the age of mammals. Called also Era. 2. One of the minor subdivisions of geological time, a subdivision of the epoch corresponding to stage or formation; recommended by the International Geological Congress. (Standard)

Aged. Approaching base-level. Formerly used in topography, geology, and physiography, and applied to the configuration of ground. (Standard)

Agent (Eng.). One to whom the general laying out and supervision of the mine is intrusted by the owner or lessee. *See also* Viewer (Gresley). The manager of a mining property.

Agente (Mex.). Agent; *A. de minería*, a mining agent appointed by the government in each district to receive documents, give possession, etc.; *A. de correos*, a postmaster. (Halse)

Agglomerate. 1. A breccia composed largely or wholly of fragments of volcanic rocks. More specifically, a heterogeneous mixture of fragments of volcanic and other rocks filling the funnel or throat of an extinct or quiescent volcano. (La Forge)
2. To wind or collect into a ball; hence to gather into a mass; to cluster. (Webster)

Aggradation. 1. In geology, the natural filling up of the bed of a watercourse by deposition of sediment.
2. Specifically, the building up by streams in arid regions of fan-like graded plains, by reason of the shifting streams and the loss of the water in the dry soil. Contrasted with Degradation. (Standard)

Aggradation plain. A plain formed by aggradation in arid districts. It begins by the building up of the hollowed bed of a stream, at the foot of a declivity, forming a plain with a nearly straight longitudinal profile, that may become a very broad plain of deposition. (Standard)

Aggregate. 1. To bring together; to collect or unite into a mass. 2. Composed of a mixture of substances, separable by mechanical means. (Webster)
3. The mineral material, such as sand, gravel, shells, slag, or broken stone, or combinations thereof, with which cement or bituminous material is mixed to form a mortar or concrete. "Fine aggregate" may be considered as the material that will pass a ¼-inch screen, and "coarse aggregate" as the material that will not pass a ¼-inch screen. (Bacon)

Aggregate polarization. The polarization displayed by extremely small grains of doubly refracting minerals. (Dana)

Aggregate structure. A confused mass of separate little crystals, scales, or grains all extinguished under the polarizing microscope at different times. (Luquer)

Agitation. In metallurgy, the act or state of being shaken, stirred, or moved with violence.

Agitation ratio. The ratio between the maximum diameter of a gangue particle and the diameter of the mineral particle that travels with it on a vanner. (Richards, p. 665)

Agitator. 1. An implement or apparatus for shaking or mixing. (Webster)
2. A mechanical apparatus employed in refining petroleum to keep the oil in constant motion when it is treated with sulphuric acid. Agitation on a large scale is now performed by means of compressed air. (Mitzakis)
3. (Pac.) *See* Settler.
4. A vat in which ore pulp is maintained in constant movement by compressed air, or mechanical means.

Agnesite (Corn.). An early name for bismutite.

Agonic line. A line passing through points on the earth's surface at which the direction of the magnetic needle is truly north and south; a line of no magnetic declination. (Standard)

Agricolite. An adamantine colorless or yellow bismuth silicate, $Bi_4Si_3O_{12}$, crystallizing in the monoclinic system. (Dana)

Agrimensor (Mex.). Surveyor. (Dwight)

Agua (Sp.). Water. *A. arrimanda* (Colom.), water brought along the side of a ravine to be used in mining. *A. de alimentación*, feed water for a steam engine. *A. de cantera*, natural moisture in stones. *A. delgada*, water containing a small quantity of salts in solution. *A. dulce*, fresh water. *A. gorda*, water containing a large quantity of salts in solution. *A. llovediza*, rain water. *A. potable*, drinking water. *A. fuerte*, nitric acid. (Halse)

Aguador (Sp.). One in charge of the water supply of a mill. (Halse)

Agua fuerte (Sp.). Nitric acid. (Halse)

Aguas de cabeza (Peru). Water filtering into the mine, due to rain. (Halse)

Aguilarite. A sectile silver selenide, $Ag_2S.Ag_2Se$ occurring in skeleton dodecahedral crystals. (Dana)

Aguja (Sp.). **1.** (Colom.) A leader or narrow vein. A branch. (Lucas) **2.** A mountain peak. **3.** A compass needle. **4.** A blasting needle. **5.** A switch rail. (Halse)

Aguja magnética (Mex.). Magnetic needle. (Dwight)

Agujero (Mex.). Drill hole. (Dwight)

Agujón (Mex.). Surveying instrument with compass. (Dwight)

Agulhas (Braz.). Oxides of titanium associated with diamonds. (Halse)

Aguzar (Mex.). To sharpen (drills). (Dwight)

Ahogarse. To pinch out, as a vein. (Lucas)

Ahogarse el oro (Colom.). To lose gold by its being carried off by the water. (Lucas)

Ahondar (Sp.). To sink; to deepen. (Min. Jour.)

Ahonde (Mex.). A shaft to establish mining title (Dwight). A discovery shaft.

Aich's metal. *See* Gun metal.

Aiguille (Fr.). **1.** A very sharp peak; used especially of certain peaks, or clusters of needle-like rocks near Mont Blanc. **2.** An instrument for boring holes, used in blasting. (Webster)

Aikinite. A blackish lead-gray sulphide of lead, copper, and bismuth. $3(Pb, Cu_2)S.Bi_2S_3$, that crystallizes in the orthorhombic system; needle ore. (Dana)

Ailsyte. A name derived from Ailsa Craig, Scotland, and suggested for a microgranite containing considerable riebeckite. (Kemp)

Ainalite. A variety of cassiterite containing tantalum pentoxide. (Standard)

Air. **1.** The mixture of gases that surrounds the earth and forms its atmosphere; composed by volume of 21 parts of oxygen and 78 of nitrogen; by weight of about 23 parts of oxygen and 77 of nitrogen. It contains also about 0.03 per cent of carbon dioxide, some aqueous vapor, and about 1 per cent argon. (Century) **2.** The current of atmospheric air circulating through and ventilating the workings of a mine. **3.** To ventilate any portion of the workings. (Gresley)

Air adit. An adit driven for the purpose of ventilating a mine. (Milford)

Air blast. **1.** A disturbance in mines accompanied by a strong rush of air through the workings. It is caused by the falling of large masses of roof in stopes, or by sudden crumbling of pillars under the weight of the rock above the mine workings, due to a stress on the rocks, which has produced a strain, and in mining operations this strain results in a violent rupture. Such a disturbance is sometimes called "quake," and the rock, "explosive rock." (Eng. and Min. Jour., vol. 105, p. 957)
2. A stream or current of air under pressure, especially that used in forges and furnaces. (Century)

Air box. **1.** A rectangular wooden pipe or tube made in lengths of, say, 9 to 15 feet for ventilating a heading or a sinking shaft. (Gresley)
2. A box for holding air. **3.** A flue for conducting air to a furnace, etc. (Webster)

Air brick. A hollow or pierced brick built into a wall to allow the passage of air. (Ries)

Air bridge. **1.** A furnace bridge so constructed as to admit heated air to the gases passing over it and thus facilitate their combustion. (Century)
2. *See* Overcast.

Air cock. A cock for letting off air. (Barrowman)

Air compartment. An air-tight portion of any shaft, winze, raise, or level, used for ventilation. (C. and M. M. P.)

Air compressor. A machine for compressing air to a pressure sufficient to actuate machinery. (Weed)

Air condenser. A surface condenser cooled by contact with air instead of water. (Webster)

Air course. A passage through which air is circulated. Particularly a long passageway driven parallel to the workings to carry the air current. *Entry air course*, a passage for air parallel to an entry. *Slope air course*, an air course parallel with a slope. (Steel)

Air crossing. A bridge or overcast where one current of air passes another without coming in contact with it. (Roy)

Air cushion. An air-tight inflatable cushion; also a device for arresting motion without shock, by confined air. (Webster)

Air door. A door placed in a mine passage to prevent the air from taking a near way to the outcast, or return, without making a circuit of the workings. (Tucker)

Air drain. A passage for the escape of gases from a mold while the molten metal is being poured in. (Standard)

Air drift. A drift connecting a ventilation shaft with the fan. (Power)

Air drill. A rock drill driven by compressed air, as distinguished from a drill driven by steam. (Century)

Air dry. Dry to such a degree that no further moisture is given up on exposure to the air. Most air-dry substances contain moisture that can be expelled by heating them or placing them in a vacuum. (Webster)

Air duct. *See* Air box, 1 and 3.

Aire (Sp.). **1.** Air or wind. **2.** Fire damp, explosive or inflammable air. **3.** Foul air. (Halse)

Air-end way (Eng.). Roadways or levels in the coal seam driven parallel with a main level, chiefly for return air in mine ventilation. (Gresley)

Air furnace. 1. A furnace that depends on natural draft and not on blast. A furnace for heating air. (Webster)
2. A reverberatory furnace in which to smelt lead. Also a reverberatory melting furnace used in the manufacture of malleable cast iron.

Air gas. A combustible gas made by saturating air with the vapor of some volatile hydrocarbon mixture, as gasoline, and used for lighting and heating. (Webster)

Air gate. 1. (Mid.) An underground roadway used principally for ventilation. (Gresley)
2. An air regulator. **3.** In molding, an orifice through which the displaced air and gases escape from the mold while the molten matter is filling it. (Century)

Air hammer. A pneumatic hammer.

Air head, or Air heading. (So. Staff.) A smaller passage, driven parallel with the gate road and near its roof, to carry the ventilating current. It is connected with the gate road at intervals by openings called spouts (Raymond). *See also* Airway.

Air hoist. Hoisting machinery operated by compressed air. (Century)

Air hole. 1. A hole drilled in advance to improve ventilation by communication with other workings or with the surface. (C. and M. M. P.)
2. A flaw in a casting. (Standard)

Air jig. An apparatus for separating ores without water, by intermittent puffs of air. (Lawver)

Airless end. The extremity of a stall in long-wall workings in which there is no current of air. The air is kept sufficiently pure by diffusion, and by the ingress and egress of tubs, men, etc. (Gresley)

Air level (Eng.). A level or airway (return airway) of former workings made use of in subsequent deeper mining operations for ventilation. (Gresley)

Air lift. An arrangement for raising water or other liquid from a well or sump, air under pressure being introduced near the foot of an open-ended pipe having a certain submergence. The column of liquid or mixture of solid and liquid in the pipe, because of the introduction of the air, is made lighter than the submergence column outside and an upward flow within the pipe results.

Air lock. 1. (Aust.) A passage, closed at both ends by doors, between airways along which currents of different pressures are flowing. Persons desirous of passing from one airway to the other can do so without personal inconvenience or interference with the system of ventilation. (Power)
2. An air chamber between the outer air and the working chamber of a pneumatic caisson. (Webster)

Air machine. A machine for forcing fresh air into and withdrawing bad air from a mine, as a fan. (Hanks)

Air man. A synonym for Brattice man.

Air motor. A motor driven by compressed air. (Webster)

Airometer. An instrument for measuring the rate of flow of air; an air meter. (Webster)

Air oven. A heated chamber for drying samples of ore, etc. (C. and M. M. P.)

Air pipes. Pipes for conveying air for ventilation or for other purposes. (Hanks)

Air pit (Eng.). A mine shaft used expressly for ventilation. (Gresley)

Air propeller. A device, as a rotary fan for circulating air, as for ventilation. (Webster)

Air pump. A pump for exhausting air from a vessel or closed space. Also a pump for compressing air. (Webster)

Air receiver. A strong vessel, into which air from a compressor is delivered. It serves as a reservoir to equalize the pressure before the air is used. It also cools the air, collects moisture, which may be drawn off, and eliminates the pulsating effect of the piston strokes.

Air-reduction process. *See* Roasting and reaction process.

Air saddle. (Aust.). A surface saddle or depression produced by erosion at the top of an anticline.

Air shaft. A shaft used for ventilating mines; it may either receive or discharge the circulating current. (Roy). *See* Upcast, *also* Downcast.

Air shot. A shot prepared by loading (charging) in such a way an air space is purposely left in contact with the explosive for the purpose of lessening its shattering effect. (Du Pont)

Air shrinkage. The decrease in volume which a clay undergoes in drying. (Ries)

Air-slaked. Slaked by exposure to the air; as air-slaked lime. (Webster)

Air slit (York.). A short heading driven more or less at right angles to and between two headings or levels for ventilation. (Gresley)

Air sollar. A compartment or passage way carried beneath the floor of a heading or of an excavation in a coal mine for ventilation. (Century). *See also* Sollar.

Air split. The division of the main current of air in a mine into two or more parts. (Roy)

Air stack (Penn.). A chimney used for ventilating a coal mine. (Century)

Air trap. A trap for shutting off or carrying off foul air or gas from drains, sewers, etc. (Webster)

Air trunk. A large pipe or shaft for conducting air, as for ventilation, or to a furnace. (Webster)

Air tub. The cylinder on a blowing engine that pumps the blast of wind or air. (Willcox)

Air valve. A valve to regulate the ingress or egress of air. (Webster)

Air vessel. A chamber connected with a pump and partly filled with air to regulate the flow of water and lessen shocks (Barrowman). Also an air receiver.

Air volcano. A miniature crater resembling a true volcano in shape and often provided with a cone; produced by explosions of gas and the emission of mud. (Century)

Airway. Any underground gallery or passage through which a portion of the ventilation passes. (Gresley)

Airy's spiral. A four-rayed spiral curve, named after the discoverer and shown when sections of right-handed and left-handed crystals are placed together in a polariscope. (Dana)

Aitch-piece. *See* H-piece.

Aixtrie (Scot.). An axle. (Barrowman)

Ajkite. A resin related to succinite, from Ajka, Hungary. *See also* Succinite. (Bacon)

Ajuste (Sp.). **1.** Contract. **2.** Adjustment (of parts of a machine). (Dwight)
3. A timber joint or connection made by notching or scarfing. (Halse)

Akerite. A variety of syenite, consisting of orthoclase, considerable plagioclase, biotite, augite, and some quartz. (Kemp)

Akins' classifier. A classifier consisting of an interrupted-flight screw conveyor, operating in an inclined trough.

Alabandite. Manganblende. Manganese sulphide, MnS. (Dana)

Alabaster. Compact fine-grained gypsum, white or delicately shaded. *See also* Gypsum. (U. S. Geol. Surv.)

Alabasterine. Of, pertaining to, or like, alabaster. (Webster)

Alabastro (Sp.). Alabaster. (Min. Jour.)

Alacrán (Mex.). A wheel or pair of wheels sometimes used in turning (stirring) the ore in the patio process. (Halse)

Ala de Mosca (Peru). Granite or very hard rock. (Dwight)

Alajites (Mex.). Altered rhodonite. (Dwight)

Alalite. A light-green variety of diopside from the Ala Valley, Tyrol. (Webster)

Alambre (Sp.) Wire of any metal. (Vel.)

Alandier (Fr.). In ceramics, a special fireplace at the base of a porcelain kiln, fed from the outside. (Standard)

Alarife (Sp.). Mine mason. (Dwight)

Alaskite. Any igneous rock consisting essentially of quartz and alkalic feldspar, without regard to texture.

Albañil (Sp.) A mason; a bricklayer. (Halse)

Albañilería (Sp.). Walling of masonry. (Halse)

Albáni stone (L.). The *peperino* of the Italians; a well-known volcanic rock, much used at Rome before building with marble became common. *See* Peperino. (Page)

Albarium (L.). White lime used for stucco and obtained by burning marble. (Standard)

Albarradón (Sp.). A dike. (Halse)

Albata (L.). A white alloy resembling German silver, consisting of nickel, copper, and zinc. (Standard)

Albayalde (Mex.). White lead, lead carbonate. (Vel.)

Albert coal; Albertite (Eng.) An asphaltic mineral occurring at Hillsboro, New Brunswick. It fills a fissure that cuts the associated strata almost vertically, and is from 1 to 16 feet thick.

Alberti furnace. A continuously working reverberatory furnace for the roasting of quicksilver ores, with condensation of the mercury in iron tubes and brick chambers. (Raymond)

Albertite. A jet-black, pitchlike, brittle hydrocarbon with conchoidal fracture, differing from ordinary asphalt in being only partly (about 30 per cent) soluble in turpentine and in very imperfect fusion when heated (U. S. Geol. Surv.). Also called Albert coal in Nova Scotia.

Albion metal (Eng.). A combination made by overlaying lead with tin and causing the two to adhere by passing them under pressure, between rollers. (Century)

Albirupean. An obsolete geological term for Potomac series.

Albite. An end member of the plagioclase series of feldspars, containing no calcium and consisting of sodium-aluminum silicate; sodium feldspar. Less common than the intermediate members, which may be considered as mixtures of albite with the other end member, anorthite (Ransome). *Compare* Anorthite.

Albite law. A mode of twinning in which the twinning plane is the brachypinacoid. It is common with the mineral albite, and gives rise to the fine striations on its cleavage surface. (Webster)

Albitization. The production, in a rock, of albite as a secondary mineral. (Webster)

Albitophyre. A dike rock containing large polysynthetic phenocrysts of albite. In the groundmass are microlites of the same mineral, together with chlorite and limonite. (Kemp)

Albo-carbon. A solid residuum of creosote. (Century)

Albolite; Albolith. A kind of plastic cement, or artificial stone, consisting chiefly of magnesia and silica. (Webster)

Alboranite. A variety of hypersthene-andesite, poor in soda, from the island of Alboran, east of the Straits of Gibraltar. (Kemp)

Albrecht condenser. A condenser used in petroleum distillation, to separate the distillate into its various fractions. (Mitzakis)

Albrecht viscometer. *See* Viscometer.

Albronz. A durable alloy of copper and aluminum, used for telescope bearings, etc. (Standard)

Alcalde (Sp.). 1. A justice of the peace. 2. A city mayor. (Halse)

Álcali (Sp.). Alkali. (Vel.)

Alcance; Saldo (Sp.). 1. Balance due. (Dwight)
2. Extent of underground workings.
3. (Chile) A rich zone of ore. (Halse)

Alcancia (Mex.). A loading chute. (Dwight)

Alcantarillado; Alcantarilla (Sp.). An underground aqueduct, drain, or tunnel. (Vel.)

Alcaparrosa (Mex.). Efflorescence (of sulphates, etc.) in old workings (Dwight). *See also* Caparrosa.

Alcarraza (Mex.). A water can used in drilling. (Dwight)

Alcatruz (Port.). A bucket of a dredge. (Halse)

Alchemy. 1. The immature chemistry of the Middle Ages, characterized by the pursuit of the transmutation of base metals into gold, and the search for the alkahest and the panacea. (Standard)
2. To coat or alloy with another metal.

Alchymy (Scot.). A white film, usually calcium carbonate, in joints of coal, iron-stone, and other minerals (Barrowman). Probably from alchemy, to coat or alloy with another metal. Now obsolete.

Alcove. A large, deep niche formed by a stream of water in a precipitous face of approximately horizontal strata. (Standard)

Alcribis (Mex.). A tuyere. *See also* Tobera. (Dwight)

Aleación (Sp.). 1. The art of alloying metals. 2. An alloy. (Halse)

Alear (Sp.). To alloy. (Vel.)

Alembic. An apparatus formerly much used in distilling. Usually made of glass or metal. (Webster)

Alembroth. The chloride of ammonium and mercury. Formerly used as a stimulant. The alchemist's "salt of wisdom." (Webster)

Aleutite. A name proposed by J. E. Spurr for those members of his belugites (*which see*) having a porphyritic texture with an asphanitic or finely crystalline groundmass. (Kemp.)

Alexandrite. An emerald-green variety of chrysoberyl, columbine-red by transmitted light. (Standard)

Alexjejevite. A resin from the Kaluga province, Russia. (Bacon)

Alfenid. A nickel alloy electroplated with silver. (Standard)

Alfileres de oro (Colom.). Gold in needle-shaped filaments. (Lucas)

Algam. In Wales, a common term for tin.

Algonkian; Proterozoic. In the nomenclature of the United States Geological Survey, the second in order of age of the systems into which the stratified rocks of the earth's crust are divided; also the corresponding period of geologic time. Some authorities use Proterozoic in the same sense. (La Forge)

Algovite. A name proposed by Winkler for a group of rocks, practically diabases or porphyritic phases of them, in the Algäuer Alps. They also embrace gabbros, according to Roth, and are doubtless textural varieties of an augite-plagioclase magma. (Kemp)

Alidade. 1. An auxiliary circle, frame, or movable arm, carrying microscopes or verniers for reading the divisions of a graduated circle or arc; also a theodolite having such an arm. 2. The straight-edge carrying the telescope for plane-table observations. (Standard)

Alien locator. A foreigner who locates a mining claim on the public domain. (U. S. Min. Stat., p. 101)

Alignment; Alinement. 1. The act of laying out or regulating by line; an adjusting to a line. 2. The line of adjustments. 3. The ground plan of a railway or other road in distinction from profile. (Century)

Alimentador (Sp.). Ore feeder of a stamp battery; *A. mecánico*, an automatic feeder; *A. de un horno*, a furnace charger; *A. de la caldera*, a boiler feeder. (Halse)

Alimentar (Sp.). To feed a mill, etc.; *A. un horno*, to charge a furnace. (Halse)

Alimento (Sp. Am.). An allowance as subsistence; a kind of 'grubstake' to miners until their mines become profitable. (Crofutt)

Alipite. A massive apple-green hydrated magnesium-nickel silicate similar to genthite. (Standard)

Alipús (Mex.). A gad. (Dwight)

Alive (Corn.). The productive part of a lode. (Power)

Alizarin. A dyestuff, $C_{14}H_6O_2(OH)_2$, formerly prepared from madder, and now produced artificially from anthracene, and forming when pure a reddish-yellow powder or orange-red crystals. (Webster)

Alkahest. In alchemy, an imaginary liquid, reputed to be a universal solvent, capable of resolving all bodies into their constituent elements. (Standard)

Alkali. In chemistry, any substance having marked basic properties. In its restricted and common sense the term is applied only to hydroxides of potassium, sodium, lithium, and ammonium. They are soluble in water, have the power of neutralizing acids and forming salts with them, the property of corroding organic substances, and of turning red litmus blue. In a more general sense the term is applied to the hydroxides of the so-called alkaline-earth metals: barium, strontium and calcium.

Alkali flat. A sterile plain, containing an excess of alkali, at the bottom of an undrained basin in an arid region. A *playa*. (Webster)

Alkali metal. Any metal of the alkali group, as lithium, sodium, potassium, rubidium, or caesium. (Webster)

Alkalimeter. An instrument to ascertain the strength of alkalies, or the quantity of an alkali in a mixture. (Webster)

Alkaline. 1. Applied to minerals having the taste of soda. (Dana)
2. Of or pertaining to the properties of an alkali. (Webster)

Alkaline earths. The oxides of barium, calcium, and strontium. Some include also magnesium oxide. All are in their properties intermediate between the true alkalies and the earths proper. (Webster)

Alkaline metals. Those metals whose oxides combine with water to form alkalies, as lithium, sodium, and potassium, etc. (Standard)

Alkali test. A process by which kerosene is treated with a solution of caustic soda, making it purer and more suitable for illuminating. The kerosenes are divided into classes according to the results given by this alkali test and a fixed scale constructed. (Mitzakis)

Alkali wash. In the cyanide process, a preliminary treatment of the pulp with an alkaline solution, commonly of lime, the chief object being to secure the neutralization of free acid before adding the strong cyanide solution, thus avoiding the undue consumption of cyanide.

Alkali waste. Waste material from the manufacture of alkali; as soda waste in the Leblanc process. (Webster)

Alkinite. A compound of lead, copper, bismuth, and sulphur, occurring in lead-gray, needle-shaped crystals, and also massive. (Webster)

Allagite. A heavy dull red or green altered carbonated rhodonite. (Dana)

Allalinite. A name derived from Allalin Mountain in the Pennine Alps, and applied by H. Rosenbusch to an actinolite-saussurite rock derived from gabbro without losing the characteristic texture of the latter. That is, the allalinites are not sheared and crushed as in the flasergabbros and forellensteins. (Kemp)

Allanite; Orthite. 1. A complex variable silicate of aluminum, iron, the cerium metals, and, in smaller quantity, those of the yttrium group. (U. S. Geol. Surv.)
2. A comparatively rare mineral closely related to common epidote and occurring generally as a microscopic constituent of igneous rocks. It contains a number of the rarer elements. (Ransome)

Allegheny formation. The second in order of age of the formations comprised in the Pennsylvanian series of strata in the bituminous coal districts of the northern Appalachian field. It overlies the Pottsville formation, comprises all the beds from the base of the Brookville coal to the top of the Upper Freeport coal, and is succeeded by the Conemaugh formation. It was formerly called the Lower Productive Coal Measures. (La Forge)

Allemontite. A rhombohedral or amorphous metallic tin-white or reddish-gray compound of antimony and arsenic, SbAs (Dana). Also called Arsenical antimony.

Allen-O'Hara furnace. A horizontal double-hearth furnace for calcining sulphide ores. (Peters, p. 201; Hofman, p. 198)

Alley stone. A synonym for Websterite (Chester). Aluminite.

Alliaceous. Applied to minerals having the odor of garlic, for example, arsenical minerals. (Dana)

Alligator. 1. *See* Squeezer. 2. A rock breaker operating by jaws. (Raymond).
3. (Aust.). A self-tipping tank, used for raising rock or coal. (Power)

Alligator wrench. A kind of pipe-wrench having a fixed flaring jaw with teeth on one side. (Webster)

Allingite. A fossil resin from Switzerland. *See also* Succinite. (Bacon)

All-mine pig. Iron smelted entirely from raw ore. (Standard)

Allochroite. A calcium-chromium garnet. (Dana)

Alloclasite; Alloclase. A steel-gray, cobalt-arsenic-bismuth sulphide, usually with part of the cobalt replaced by iron, Co(AsBi)S, that crystallizes in the orthorhombic system. (Dana)

Allomorph. In mineralogy, a pseudomorph formed without change of chemical composition, as calcite after aragonite. (Standard)

Allopalladium. A nearly silver-white palladium, found in hexagonal plates in the Harz Mountains, Germany. (Dana)

Allophane. A hydrous silicate of aluminum, amorphous, translucent, and of various colors, often in incrustations or stalactitic forms; $Al_2SiO_5 + 5H_2O$. (Webster)

Allothigene. In geology, produced from elsewhere; said of the ingredients of clastic rocks, or of the clastic ingredients of any rock: contrasted with Anthigene. (Standard)

Allotriomorphic. An adjective coined by Rosenbusch in 1887 to describe those minerals in an igneous rock that do not possess their own crystal faces or boundaries, but which have their outlines impressed on them by their neighbors. They result when a number of minerals crystallize at once so as to interfere with one another. They are especially characteristic of granitoid textures. The word was unnecessary, as xenomorphic had been suggested for the same thing, but it is in more general use than xenomorphic. *See also* Anhedron. Opposed to Idiomorphic. (Kemp)

Allotrope. One of the forms assumed by an allotropic substance; as the diamond is an allotrope of carbon. (Standard)

Allotropy; Allotropism. The capacity of existing in two or more conditions, that are distinguished by differences in properties. Thus carbon occurs crystalline as in the diamond, and amorphous as in charcoal. (Webster)

All over. End of a shift; when the breaker at a colliery shuts down for the day it is said to be "all over."

Allowance (Eng.). 1. Refreshment of bread, cheese, and beer supplied by the lessees or owners of a mine to surveyors. 2. Ale given to workmen on having to work under unusual conditions, for example, when they are wet through. (Gresley)

Allowance coal (Eng.). *See* Colliers' coal.

Alloy. 1. A compound of two or more metals, usually produced by fusion. When composed of two, three, or four metals or elements it is called respectively Binary alloy, Ternary alloy and Quarternary alloy.
2. The baser metal that reduces the commercial value of the compound or mixture as its proportion is increased; as, the alloy used for hardening gold and silver coins. (Standard)

Alloyage. The act or process of alloying: specifically, in minting, of alloying the precious metals with baser ones to harden them. (Standard)

Alloy balance. An adjustable balance that is in equilibrium when the metals in the scale pans are in the proper proportions for forming an alloy. (Standard)

Alloy cast-iron. Cast-iron alloyed with some other metal. (Webster)

Alloy steel. Steel that contains one or more elements other than carbon in sufficient proportion to modify or improve substantially and positively some of its useful properties. (Hibbard) *e. g.*, Manganese steel.

Alloy-treated steel. A simple steel to which one or more alloying elements have been added for curative purposes, but in which the excess of the element or elements is not enough to make it an alloy steel. (Hibbard)

All-sliming. Crushing all the ore in a mill to so fine a state of subdivision that only a small percentage will fail to pass through a 200-mesh screen.

All-ups (Leic.). A mixture of every quality of coal, excepting fine slack, raised from one seam, and sold as such. (Gresley)

Alluvial. 1. Of or pertaining to alluvium. Relating to deposits made by flowing water. 2. Gold-bearing deposits of alluvium.

Alluvial epoch. The latter part of the Champlain period (Quaternary), overlying the Diluvial period, and characterized by the more quiet fluvial and lacustri depositions. (Standard) Now obsolete.

Alluvial fan. The outspread sloping deposit of bowlders, gravel, and sand left by a stream where it spreads from a gorge upon a plain or open valley bottom. (Ransome)

Alluvial gold. Gold found in association with water-worn material. (Duryee)

Alluvial tin. Stream tin, or disintegrated cassiterite found in the gravel along the courses of valleys and rivers on the bedrock. Generally the purest tin ore.

Alluvião (Port.). Alluvium. (Halse)

Alluviation. The process of building alluvial deposits. (Standard)

Alluvion. 1. Wash or flow of water against a bank or shore. An overflowing; an inundation; a flood. 2. Synonymous with Alluvium, *which see.* (Webster)
3. A consolidated volcanic cinder-mud. (Standard) *See also* Tufa.

Alluvium. 1. Lyell's name for the deposit of loose gravel, sand and mud that usually intervenes in every district between the superficial covering of vegetal mould and the subjacent rock. The name is derived from the Latin word for an inundation. It was employed by Naumann as a general term for sediments in water as contrasted with eolian rocks. It is generally used today for the earthy deposit made by running streams, especially during times of flood. (Kemp)
2. *See* Alluvion, 3.

Allwork (Derb.). A term formerly used for longwall. (Gresley)

Almacén (Mex.). Warehouse. (Dwight)

Almacenista (Sp.). A store keeper; a person who sells goods in a warehouse. (Halse)

Almadén (Sp.). A mine or mineral deposit. (Halse)

Almadeneta. 1. (Mex.). Stamp head or shoe (Dwight)
2. (Sp.) A small hammer for breaking stones. (Halse)

Almagra (Sp.). A deep-red ocher originally from Andalusia, Spain, similar to Indian red: used as a pigment, and in polishing glass and metals. (Standard)

Almacral (Sp.). A place where red ocher is found. (Halse)

Almagre (Mex.). Red ocher. (Dwight)

Alman. *See* Almond furnace.

Almandite. An iron-aluminum garnet, $3FeOAl_2O_3.3SiO_2$. Used as a gem. (U. S. Geol. Surv.) Also called Almond stone.

Almártaga (Peru). Litharge. (Dwight)

Almendrilla (Sp. Am.). 1. Pudding stone; banket. (Lucas)
2. In Mexico, a quartz forming the matrix of a copper vein. (Halse)

Almocafre. 1. (Colom.) A kind of hoe used in placer mining. (Lock)
2. (Port.) A pick or mattock used in working mines. (Halse)

Almond furnace. A furnace in which the slags of litharge left in refining silver are reduced to lead by being heated with charcoal. (Century)

Almond rock. An amygdaloid. (Webster)

Almond stone. *See* Almandite.

Alnoite. A very rare rock with the composition of a melilite basalt. It was first discovered in dikes on the island of Alno, off the coast of eastern Sweden. The special name was given it by Rosenbusch to emphasize its occurrence in dikes and its association as a very basic rock, with nepheline syenite. Alnoite also occurs near Montreal, Canada, and at Manheim Bridge, N. Y (Kemp)

Aloes rope. A special kind of rope, sometimes used in oil-well drilling, the breaking strain of which is 300 kg. per circular centimeter. It is manufactured from the aloe, a plant indigenous to Cape Colony. (Mitzakis)

Alpine glacier. A type of glacier occurring about the peaks and in the valleys and gorges of mountains, originating above by various branches in amphitheaters, terminating below, either by melting, or by spreading out into piedmont glaciers; an ice river. (Standard)

Alquifol (Sp.). Galena. (Min. Jour.)

Alquifou (Fr.). A coarse-grained galena used by potters in preparing a green glaze. Also called Potters' ore. (Standard)

Alquilar (Sp.). To hire; to let; to rent. (Halse)

Alquitrán (Sp.). Tar or liquid pitch; *A. de hulla*, coal tar; *A. mineral. See* Betún. (Halse)

Alsbachite. A variety of granite-porphyry containing large mica crystals and rose-red garnets. (Kemp)

Alshedite. A variety of titanite containing yttrium peroxide. Found in Sweden. (Standard)

Alstonite. *See* Bromlite.

Altai (Mongolia). Gold. (Lock)

Altaite. A lead telluride, PbTe, found in Colorado (U. S. Geol. Surv.). Originally found in the Altai mountains of Asia.

Altar of a reverberatory furnace. *See* Bridge, 1.

Alt-azimuth. An instrument for simultaneously observing the azimuth and altitude of a celestial body. (Webster)

Alteration. Strictly, any physical or chemical change in a rock or mineral subsequent to its formation. As ordinarily used, however, the term excludes cementation or induration of sediments to form hard rocks and implies change to such an extent that new minerals or new rock textures are developed. (La Forge)

Altered mineral. A mineral that has undergone more or less chemical change under the processes of nature. (Century)

Altered rock. A rock that has undergone changes in its chemical and mineralogical structure since its original deposition. (Weed)

Altern. A crystal form having opposite parts corresponding in form, but alternating with each other in the position of sides and angles. (Standard)

Alternating motion. Up and down, or backward and forward motion. (C. and M. M. P.)

Altitude. Vertical distance or elevation above any given point or base-level, as the sea; height; hence, also, such distance numerically expressed. (Standard)

Alto. **1.** (Sp.) A bluff, height, hill. Used in southwestern United States. (Standard)
2. (Mex.) A hanging wall. *See also* Respaldo. (Dwight)

Altogether-coal (Eng.). Large and small coal mixed. (Gresley)

Alto horno (Sp.). Blast furnace. (Lucas)

Altura (Mex.). Height; altitude. (Dwight)

Aludel. One of a series of pear-shaped vessels of glass or earthenware fitted one into another and used for condensation, as in subliming mercury (Standard). *See also* Bustamente furnace.

Alum. **1.** Specifically, the hydrous double sulphate of aluminum and potassium, found in nature as the mineral kalinite. **2.** In chemistry, any one of a group of salts which are hydrous double sulphates of aluminum, chromium, iron, or manganese and one of the alkali metals. **3.** In mineralogy, one of a group of minerals which are hydrous sulphates of aluminum and potassium, sodium, or ammonium. (La Forge)

Alumbrado (Sp.). Lighting. (Lucas)

Alumbre (Sp.). Alum; *A. de roca*, rock alum; *A. de piedra*, alumstone; alunite. (Halse)

Alum cake. A product of the action of sulphuric acid on clay, consisting chiefly of silica and aluminum sulphate. (Webster)

Alum earth. An argillaceous rock, containing considerable pyrite, and largely impregnated with bitumen. (Standard)

Alum feather. *See* Iron alum.

Alum flower. Powdered burnt alum. (Webster)

Alum glass. Crystallized alum.

Alumina. Oxide of aluminum, Al_2O_3. Pure crystalline alumina is represented by corundum, sapphire, and ruby. The commonest form of alumina is as a silicate, of which clays are mostly composed, and as the compound silicates of aluminum and other metals, of which a large class of minerals is formed. (Roy. Com.)

Aluminite. A hydrous sulphate of aluminum, $Al_2O_3.SO_3.9H_2O$, usually occurring in white reniform masses. (Dana)

Aluminium. *See* Aluminum.

Aluminous. Of the nature of alumina or clay. (Hitchcock)

Aluminum. A bluish silver-white metal, malleable, ductile, sonorous, noted for its lightness and resistance to oxidation. Symbol, Al; atomic weight, 27.1; specific gravity 2.7 (Webster). Also Aluminum.

Aluminum bronze, or Aluminum gold. An alloy of aluminum and copper resembling pale gold: used in cheap jewelry, etc. (Standard). As a powder, used in gilding.

Aluminum minerals. Alunite, amblygonite, andalusite, bauxite, corundum, cryolite, cyanite, diaspore, sillimanite, spinel, topaz, turquois, wavellite, and many silicates. (A. F. Rogers)

The commercial ores of aluminum are cryolite, a fluoride of sodium and aluminum, found in Greenland; bauxite, a hydrous compound of almumina, ferric oxide, and silica, found in Arkansas, Georgia, and Tennessee.

Aluminum silver. A bright alloy of aluminum and silver, used in instruments where lightness is an object, the lightness increasing with the proportion of aluminum. (Standard)

Aluminum solder. An alloy or gold, silver, and copper, with sometimes a little zinc. Used for soldering aluminum bars. (Standard)

Alumocalcite. A variety of opal with alumina and lime as impurities. (Dana)

Alum salts. Natural salts from which alum can be made. *See also* Halloysite, Kaolinite. (U. S. Geol. Surv.)

Alum schist, shale, or slate. A clayey rock containing carbonaceous material and marcasite that when decomposed yields by efflorescence common alum. (Standard) *See also* Alum shale.

Alum shale. Shale charged with alum, that in favorable localities may be commercially leached out and crystallized. The alum results from the decomposition of pyrite, because the sulphuric acid, thus produced, reacts on the alumina present, yielding a double sulphate. (Kemp)

Alum slate. *See* Alum schist, and Alum shale.

Alum stone. An impure siliceous alunite. (A. F. Rogers)

Alundum. An artificial abrasive used in the manufacture of oilstones and grinding wheels. Made by fusing the natural mineral bauxite in electric furnaces. Alundum has the same chemical composition as the natural mineral corundum. (Pike)

Alunite; Alumstone. A hydrous sulphate of aluminum and potassium, $K(AlO)_3(SO_4)_2.3H_2O$, containing 11.4 per cent potash, K_2O. (U. S. Geol. Surv.) Closely resembles kaolinite and occurs in similar locations. Generally the result of the action of water, containing sulphuric acid, on feldspathic rocks, as when pyrite in granite porphyry is oxidized. (Ransome)

Alunogen. A hydrous aluminum sulphate, $Al_2(SO_4)_3+18H_2O$, frequently found on the walls of mines and quarries. Also called Feather alum and Hair salt. (Webster)

Alurgite. A purple to red variety of manganese mica from St. Marcel, Piedmont. (Dana)

Alutación (Sp.). A nugget, or a layer of gold in grains found at or near the surface of the ground. (Halse)

Aluviónes (Sp.). Alluvial deposits. (Lucas)

Alvará (Port.). A definite title or patent for a concession. (Halse)

Alvecas (Peru). A name given to the three tubes leading from the furnace to the aludeles. (Halse)

Álveo (Port.). The bed of a river. (Halse)

Alza (Bol.). Separating gold from sand in a washer. (Halse)

Alzador (Mex.). Workman employed in loading wagons, etc. (Dwight)

Alzas (Peru). The upper portion of a mine. (Halse)

Amagamiento (Sp. Am.). Rivulet; ravine; torrent. (Lucas)

Amain (Eng.). With great force or speed. Wagons or tubs are said to run amain, if by accident they go over an incline, bank, or dump, without the rope being attached; or through the rope becoming detached or broken. (G. C. Greenwell)

Amalgam. 1. A native compound of silver and mercury, in which the percentage of silver ranges from 27.5 to 95.8. Native gold amalgam carrying 39 to 42.6 per cent gold has also been found. (U. S. Geol. Surv.)

2. An alloy or union of mercury with another metal. Amalgams are made by bringing mercury in contact with another metal, a salt of another metal, or by placing the metal in a salt of mercury. 3. In gold metallurgy, an alloy of gold

and mercury, usually obtained by allowing gold-bearing minerals, after crushing, to come in contact with mercury in stamp batteries, sluices, or mercury-coated copper plates. The alloy (amalgam) is collected and the mercury is driven off by distillation, the gold remaining in the retort.

Amalgama (Sp.). Amalgam. (Dwight)

Amalgamar (Sp.). To amalgamate. (Lucas)

Amalgam arc. An arc in a vacuum tube having electrodes of mercury amalgamated with zinc, cadmium, or other metal. The spectra of such arcs contain the bright lines of the metals in the electrodes. (Webster)

Amalgamate. 1. To unite (a metal) in an alloy with mercury. 2. To form an amalgam with; as, mercury easily amalgamates with gold. (Standard)
3. To merge two or more corporations into a single body. (Webster)

Amalgamated claims (Eng.). Mining claims adjoining one another that have been grouped into one claim for more economical working. (Duryee)

Amalgamating-barrel. A short cylindrical vessel or barrel with solid ends turned to fit bearings. The barrel is used for amalgamating battery accumulations and other material. It is run with intermittent charges, and contains a load of steel balls or pebbles to effect comminution and to bring the mercury into contact with the metal to be amalgamated. Charging and discharging are done through suitable doors.

Amalgamation. 1. The production of an amalgam or alloy of mercury. 2. The process in which gold and silver are extracted from pulverized ores by producing an amalgam, from which the mercury is afterward expelled. *See also* Retorting. (Raymond)

Amalgamation-pan. A pan in which the process of amalgamation or combination with mercury is effected (Rickard). Used in gold and silver metallurgy.

Amalgamator. An apparatus used in metallurgy for bringing pulverized ore into close contact with mercury to extract free metal from it by amalgamation. *See* Amalgamation pan; *also* Amalgamating-barrel. (Standard)

Amalgam gilding. A process of gilding in which a metallic surface is coated with gold amalgam and the mercury driven off by heat. (Standard)

Amalgam retort. An iron retort having a convex lid, luted at the edges, and held by a key or wedge pressed between its crown and the bail. The retort is arranged so that heat enough to volatilize the mercury can be applied; and a suitable exit pipe is connected to a condenser, or merely cooled with circulating water at a safe distance from the retort.

Amalgam silvering. A process of silvering similar to amalgam gilding. (Standard)

Amarantite. A monoclinic hydrous-ferric sulphate, $Fe_2O_3.2SO_3.7H_2O$. (Dana)

Amarillo (Sp.). Yellow. *A. de montaño*, yellow earth; orcherous clay. (Halse)

Amarrar las aguas (Sp. Am.). To clear the mine or pit of water, by means of trenches. (Lucas)

Amas (Sumatra). Gold; *A. Lichin*, nugget-gold; *A. Muda*, inferior gold; *A. Supayang*, vein-gold; *A. Urei*, gold dust. (Lock)

Amatista (Sp.). Amethyst. (Vel.)

Amatito. A red pigment prepared from hematite; formerly used in frescoing. (Standard)

Amatrice. *See* Variscite.

Amausite. Same as Petrosilex. (Standard)

Amazonite. *See* Amazon stone.

Amazon stone; Amazonite. A green microcline. A variety of orthoclase. Used as a gem. (Dana)

Ambar. The Russian name given to excavations dug around a derrick forming small reservoirs, where the sand raised from the bore-hole is deposited. Also used as a temporary reservoir for oil. (Mitzakis)

Ámbar (Sp.). Amber; *A. negro*, jet. (Halse)

Amber. A hard, brittle, translucent, fossilized vegetal resin, of a clear yellowish-brown or light-yellow color. Called in mineralogy Succinite. (Standard)

Amber forest. A fossil forest from which amber has been formed. (Webster)

Amblygonite; Hebronite. A fluo-phosphate of aluminum and lithium $Li(AlF)PO_4$. Used in the manufacture of lithium preparations in medicine. (Dana)

Amblystegite. A dark brownish-green to black magnesium-iron metasilicate, $(Mg.Fe)SiO_3$, that crystallizes in the orthorhombic system, and is closely related to hypersthene. (Standard)

Ambrite. A greasy, yellowish-gray fossil resin, resembling Kauri-gum, found in New Zealand; sometimes used as jewelry. (Standard)

Ambroid. A reconstructed amber, made by heating and uniting by pressure fragments of amber. (Standard)

Ambrosine. A yellowish to clove-brown resin found in the phosphate beds near Charleston, S. C.; it may be a modern resin that has been subjected to the action of salt water. (Bacon)

Amercement (Derb.). A fine in the barmote court, imposed on a miner for violation of the laws. (Mander)

American-Belgian furnace. A direct-fired Belgian furnace employed in the United States, conforming essentially to the Liège design, but presenting minor differences because of local adaptation. (Ingalls, p. 433)

American forge. *See* Catalan forge; Champlain forge.

American paraffin-oil. An English term for kerosene of American origin. (Bacon)

American pump. A special kind of bailer, used in oil fields for cleaning out wells (Mitzakis). *See also* Bailer.

American system of drilling. *See* Cable system.

American vermilion. A basic chromate of lead. (Webster)

Amethyst. A purple or bluish-violet quartz, SiO_2. Used as a gem. (U. S. Geol. Surv.)

Amethystine quartz. A phenocrystalline variety of quartz colored purplish or bluish-violet by manganese (Standard). *See also* Amethyst.

Amianthinite. Asbestos. (Standard)

Amiantho (Port.). Same as Amianto.

Amianthus. One of the finer and more silky varieties of asbestos. Called also Earth-flax and Mountain-flax. (Standard)

Amianto (Sp.). Amianthus; a fine silky variety of asbestos. (Halse)

Amiantoid. 1. Having the appearance of asbestos. 2. An olive-green, coarse, fibrous variety of asbestos. Called also Byssolite. (Standard)

Ammite. Oölite; roestone. (Standard)

Ammonal. An explosive consisting of a mixture of powdered aluminum (1 part), and nitrate of ammonium (8 parts).

Ammonia. A colorless gaseous compound of hydrogen and nitrogen (NH_3) with extremely pungent smell and taste. Sp. Gr. as compared with air, 0.589. (Webster)

Amonia gelatin. An explosive consisting of blasting gelatin, ammonium nitrate, and charcoal. (Webster)

Ammonia oil. An oil suitable for the lubrication of the cylinders of ammonia compressors. Low cold-test is essential for this purpose. (Bacon)

Ammonite. Ammonium nitrate explosives, containing from 70 to 95 per cent ammonium nitrate, besides combustile components, which are so-called carbon carriers, as resin, meal, naphthalene. (Brunswig, p. 305)

Amo. 1. (Sp.) An overseer. 2. (Mex.) An owner of a mine. (Halse)

Amojonar (Mex.). To set monuments or landmarks. (Dwight)

Amolinar (Sp. Am.). To wash the auriferous alluvion in a wooden trough. (Lucas)

Amonedar (Sp.). To coin. (Min. Jour.)

Amoníaco (Mex.). Ammonia. (Dwight)

Amontonar (Sp.). To pile up; to make into heaps. (Halse)

Amorfo (Mex.). Amorphous. (Dwight)

Amorphism. The state or quality of being amorphous; especially, the absence of crystalline structure. (Standard)

Amorphous. Without form; applied to rocks and minerals having no definite crystalline structure. (Roy. Com.)

Amorphous phosphorus. A reddish-brown, nontoxic, allotropic modification of phosphorus obtained by heating common phosphorus to about

450° F. in air-tight vessels; largely used for safety matches. Called also Red phosphorus. (Standard)

Amortization. The repayment of a debt, principal and interest, in equal annual installments. Frequently used in finance as the extinction of a debt, regardless of the means employed. (E. B. Skinner, p. 114). Important in connection with mining finance.

Amortization schedule. In finance, a table so constructed as to show the principal remaining due or outstanding immediately after the annual payment, the interest for the interval, and the amount of principal repaid. (E. B. Skinner, p. 121)

Amortize. To clear off, liquidate, or otherwise extinguish, as a debt. To extinguish by periodically charging off a portion so as to bring the value to par at maturity. (Webster)

Amparar (Mex.). 1. To cover (title). (Dwight)
2. *A. en la posesión*, to maintain in possession. (Halse)

Amparo (Sp.). Continued possession of a mine to secure title; keeping the necessary number of men at work in accordance with mining laws. (Crofutt)

Ampelite. 1. A name, specially current among the French, for shales, charged with pyrite and carbonaceous matter, that may yield alum-shales. (Kemp)
2. Cannel coal; also carbonaceous schist. (Webster)

Amperage. The strength of an electric current measured in amperes. (Century)

Ampere. The practical unit of electric current; the current produced by 1 volt acting through a resistance of 1 ohm. (Webster)

Ampere foot. One ampere flowing through 1 foot of an electric conductor. A wire 20 feet long conducting a current of 6 amperes is said to have 120 ampere feet. (Standard)

Ampere hour. The quantity of electricity delivered in 1 hour by a current whose average strength is 1 ampere. (Webster)

Ampere meter. An instrument for measuring in amperes the strength of an electric current; an ammeter. (Standard)

Ampere turn. A unit equal to the product of one complete convolution of a coiled conductor into 1 ampere current. Thus a conductor having 5 convolutions with ½ ampere current is said to have 2½ ampere turns. (Webster)

Ampere volt. A watt. (Standard)

Amphibole. The generic name for the group of bisilicate minerals whose chief rock-making member is hornblende. It is often prefixed to those rocks that have hornblende as a prominent constituent, as amphibole-andesite, amphibole-gabbro, amphibole-granite, etc. (Kemp). *See also* Hornblende.

Amphibolite. A metamorphic rock consisting chiefly of hornblende, or of some member of the amphibole group. It is, as a rule, a synonym of hornblende schists, but is preferable to the latter, when the schistosity is not marked. (Kemp)

Amphibolization. Metamorphic alteration of other material into amphibole. (Standard)

Amphigène. Leucite, $K_2O.Al_2O_3.4SiO_2$. (Dana)

Amphigenite. Lava containing amphigène. (Standard)

Amphimorphic. In geology, formed by a two-fold process, as the action of mineral-bearing thermal springs upon sedimentary argillaceous deposits during deposition. (Standard)

Ampliación (Mex.). The enlargement of a mining claim. (Dwight)

Ampollosa (Mex.). Rock structure containing cavities. (Dwight)

Amurang (Ceylon). Gold ore. (Lock)

Amygdaloidal. Relating to an amygdule.

Amygdaloid. A vesicular or cellular igneous rock, ordinarily basaltic, in which the vesicles have been partly or wholly filled with a secondary deposit of calcite, quartz, epidote, native copper, or zeolites. (La Forge). The term is used in the form of the adjective, amygdaloidal, and properly should be limited to this. As a noun it is also employed for secondary fillings of the cavities, which are usually calcite, quartz, or some member of the zeolite group. Amygdaloidal rocks are of chief interest in America because certain basaltic lava sheets on Keweenaw Point,

Lake Superior, have their amygdules filled with native copper and are important sources of the metal. Amygdaloidal cavities are limited to the upper and lower portions of lava sheets. The name is derived from the Greek word for almond. (Kemp)

Amygdule. A small globular cavity in an eruptive rock caused by steam or vapor at the time of its eruption and generally lined afterwards with secondary minerals. (U. S. Geol. Surv. Bul. 521, p. 162)

Anabranch (Aust.). An effluent of a stream that rejoins the main stream, forcing an island between the two watercourses. (Standard)

Anaclinal. Descending in a direction opposite to the dip of the strata, as an anaclinal river. Opposed to Cataclinal. (Webster)

Añagua (Arg.). A shrub used as fuel in high desert regions. (Halse)

Analcite. A hydrous sodium-aluminum silicate, $NaAlSi_2O_6+H_2O$, belonging to the zeolite group. (Dana)

Analcite-basalt. A variety of basalt whose feldspar is more or less replaced by analcite. The analcite is in places in such relations as to give reason for thinking it an original mineral and not an alteration product from feldspar. Analcite-basalts occur in the Highwood mountains, Mont. Analcite-diabase has been found in California. *See also* Teschenite. (Kemp)

Analcite-tinguaite. Tinguaite (*which see*) with considerable analcite. (Kemp)

Analcitite. Pirsson's name for the olivine-free analcite-basalts. (Kemp)

Analizar (Mex.). To analyze. (Dwight)

Analysis. Specifically, in chemistry and mineralogy, the determination, by chemical methods, of the nature and proportionate amounts, and sometimes also of the manner of combination, of the elementary constituents of a compound substance, as a mineral or a rock. Also, loosely, a tabular statement of the result of such an analysis. (La Forge)

Analyzer. That part of a polariscope that receives the light after polarization, and exhibits its properties. (Webster)

Anamesite. An old name suggested by von Leonhard in 1832 for those finely crystalline basalts that texturally stand between the dense typical basalt and the coarser dolerites. The name is from the Greek for "in the middle." (Kemp)

Anamorphic zone. A zone corresponding to the zone of rock-flowage. It is especially characterized by silicatization involving decarbonation, dehydration and deoxidation; the processes are constructive. *See also* Katamorphic zone. (Watson)

Anamorphism; Anamorphosis. Metamorphism at considerable depths in the earth's crust and under great pressure, resulting in the formation of complex minerals from simpler ones. (La Forge)

Anatase (Fr.). Same as Octahedrite. (Standard)

Anatexis. A refusion of igneous rocks. (Daly, p. 309)

Anchi eutectic. Magmas which are incapable of undergoing notable differentiation. (Daly, p. 360)

Ancho (Sp.). Wide. *See* Anchura. (Halse)

Anchor. An iron plate used in withdrawing coke from a coke oven. (Standard)

Anchor bolt. A foundation bolt; a drift spike, or other device used for holding any mechanism or structure down. It may or may not be threaded.

Anchor ice. *See* Ground ice.

Anchor oven. An oven from which coke is removed with an anchor-shaped rabble. (Standard)

Anchura (Sp.). 1. Width or thickness of a mineral deposit. 2. The widening of a vein. 3. The width of a gallery, etc. (Halse)

Anchurón (Sp.). A large room opened in massive ore deposits. (Halse)

Ancla (Mex.). Anchor; hook. (Dwight)

Ancón de tierra (Mex.). A projecting or salient corner of a mining claim. (Dwight)

Andalusite. An aluminum silicate Al_2SiO_5. Sometimes used as a semiprecious stone. (Dana)

Andalusite-hornstone. A compact contact rock containing andalusite. It is usually produced from shale or slate by intrusions of granite. (Kemp)

Andamio (Mex.). 1. Builders' jack. 2. A scaffold. (Dwight)

Andarivel (Sp.). An overhead cableway. (Lucas)

Andén (Sp.). 1. A path for horses around the shaft, as at a horse whim. (Dwight)
2. A railroad station platform. (Halse)

Andendiorite. A Tertiary quartz-augite-diorite that occurs in areas like islands in the midst of the volcanic rocks of the Chilean Andes. The quartz crystals are remarkable for their inclusions of glass and of fluids with salt crystals. (Kemp)

Andengranite. A biotite-bearing hornblende-granite, similar in occurrence and microscopic features to Andendiorite. (Kemp)

Andesine. One of the plagioclase feldspars. Intermediate between albite and anorthite (Dana). A silicate of sodium, calcium, and aluminum, with the sodium in excess of the calcium. An important constituent of andesite and diorite. (Ransome)

Andesita (Mex.). Andesite. (Dwight)

Andesite. A volcanic rock of porphyritic or felsitic texture, whose crystallized minerals are plagioclase and one or more of the following: biotite, hornblende, and augite. The name was suggested by L. von Buch in 1836, for a certain rock from the Andes resembling trachyte, but whose feldspar was at first thought to be albite, and later oligoclase. (Kemp)

Andradite. The common calcium-iron garnet, $Ca_3Fe_2(SiO_4)_3$. (Dana)

Anegada (Mex.). Drowned; overflowed; left to fill with water. (Dwight)

Anemometer. An instrument for measuring the velocity of air currents; specifically, in mines, a common form consists of a small delicately mounted disk fan connected by means of gears with indicating dials. Especially useful when air current is over 100 feet per minute.

Anemometry. The process of determining the pressure or velocity of the wind (air) by means of an anemometer. (Century)

Aneroid barometer. An instrument for showing the pressure of the atmosphere by means of the movements of the elastic top of a metallic box from which the air has been partly exhausted. The most sensitive aneroids show the variation of pressure due to a difference of height of a few feet; hence the instrument is much used in measuring altitudes (Standard). *See also* Barometer.

Anfibolita (Sp.) Amphibolite. (Lucas)

Angle. 1. The figure formed by two meeting lines (plane angle), two meeting planes (dihedral angle), or three or more planes meeting in a point (solid angle). 2. The difference in direction of two lines. 3. A projecting or sharp corner. (Webster)

Angle beam. A two-limbed beam used for turning angles in shafts, etc. (C. and M. M. P.)

Angle brace. A brace used to prevent mine timbers from riding or leaning (Sanders, p. 156). A brace across an interior angle.

Angle of dip. A synonym for Dip.

Angle of incidence. The angle formed by the line of incidence and a line drawn from the point of contact perpendicular to the plane or surface on which the incident ray or body impinges. (Century)

Angle iron. A bent piece of iron used for joining two or more parts of a composite structure at an angle. Also a rolled shape largely used in structural work.

Angle of nip. The angle between tangents drawn to an ore particle at the point of its contact with the surface of the rolls. (Richards)

Angle of polarization. That angle whose tangent is the index of refraction of a reflecting substance. (Dana)

Angle of pull. The angle between the vertical and an inclined plane bounding the area affected by the subsidence beyond the vertical. Applied to slides of earth. (Watson)

Angle of rest or repose. The angle with a horizontal plane at which loose material will stand on a horizontal base without sliding. It is often between 30° and 35°. (Webster)

Angle of slide. The slope, measured in degrees of deviation from the horizontal on which a slide of material will start (Watson). It is slightly greater than the angle of rest.

Anglesite. Lead sulphate, $PbSO_4$, containing 68 per cent lead. (Dana)

Angleur furnace. A furnace for the distillation of zinc. (Ingalls, p. 448)

Angostura (Sp.). Narrowness; a narrow mountain pass. (Halse)

Ángulo (Mex.). Angle. (Dwight)

Angus Smith composition. A protective coating for valves, fittings, and pipe used for underground work. It is composed of coal tar, tallow, resin, and quicklime, and must be applied hot. (Nat. Tube Co.)

Anhedral. Having a form determined by the surrounding crystals; allotriomorphic; xenomorphic; said of minerals in a granular igneous rock. Contrasted with Euhedral and Subhedral. (La Forge)

Anhedron. A name proposed by L. V. Pirsson for the individual mineral components of an igneous rock that lack crystal boundaries, and that can not therefore be properly called crystals according to the older and most generally accepted conception of a crystal. Xenomorphic and allotriomorphic are adjectives implying the same conception. The name means without planes. (Kemp)

Anhydride. An oxide of a nonmetallic body, or an organic radical, capable of forming an acid by uniting with water, or of being formed from an acid by the abstraction of the water, or of uniting with basic oxides to form salts. (Webster)

Anhydrite. Calcium sulphate, $CaSO_4$, or $CaO.SO_3$. Contains 41.2 per cent lime and 58.8 per cent sulphur trioxide. Usually associated with gypsum, to which it alters. Differs from it in being harder and in lacking water of crystallization. (U. S. Geol. Surv.)

Anhydrous. Destitute of water, especially water of crystallization. (Webster)

Añilado (Sp.). An indigo-colored copper ore. (Halse)

Anillo (Mex.). Ring; collar; loop on the end of a rope. In the plural, a set of shaft-timbers; shells for crushing-rolls. (Dwight)

Animikean system. The middle subdivision of the Proterozoic era, sometimes known as the Upper Huronian or Penokean. (Chamberlin, vol. 2, p. 183)

Animikite. A white to gray silver antimonide, Ag_3Sb, that is found in fine granular masses in the Lake Superior region. (Standard)

Anisometric. Having unsymmetrical parts. Not isometric. (Webster)

Anisotropic. Not having the same properties in all directions with regard to light; characteristic of all crystalline minerals except those of the isometric system. (Power)

Ankerite. A white, red, or grayish calcium-magnesium-iron carbonate, $CaCO_3(Mg,Fe,Mn)CO_3$ (Dana)

Ankylostomiasis. A disease due to the presence of parasites in the small intestines. When present in large numbers, by sucking the blood from the intestinal walls they produce a severe anemia (Webster). Also called Miner's worm; Hookworm; Tunnel disease.

Anna. An East Indian money of account, one-sixteenth rupee, or about two cents. (Webster)

Annabergite. A hydrous nickel arsenate, $Ni_3As_2O_8.8H_2O$. (U. S. Geol. Surv.)

Anneal. *v.* 1. To heat, fire, bake, or fuse, as glass, earthenware, ore, etc. 2. To heat, as glass, earthenware, or metals in order to fix colors. 3. To treat, as glass, earthenware, or metals, by heating and gradually cooling, so as to toughen them and remove brittleness. (Century)

Annealed steel. Steel that has been subjected to an annealing operation. (Hibbard)

Annealed wire rope. A wire rope made from wires that have been softened by annealing. (C. M. P.)

Annealing. 1. The process by which glass and certain metals are heated and then slowly cooled to make them more tenacious and less brittle. Important in connection with the manufacture of steel castings, forgings, etc. 2. *See* Malleable castings.

Annealing-arch. The oven in which glass is annealed. (Century)

Annealing-box. A box in which articles to be annealed are enclosed while in the furnace (Standard). Also called Annealing pot.

Annealing-color. The hue taken by steel in annealing. (Standard)

Annealing-furnace. *See* Annealing oven.

Annealing-oven. An oven or furnace for heating and gradually cooling metals or glass to render them less brittle (Standard). Also called Annealing furnace.

Annealing-pot. A closed pot in which articles are placed to be annealed or subjected to the heat of a furnace. They are thus enclosed to prevent the formation of oxide upon their surfaces (Century). Also called Annealing-box.

Annerödite. A submetallic black uranium-yttrium pyroniobate, crystallizing in the orthorhombic system. (Dana)

Annual labor. Same as Assessment work on mining claims. (U. S. Min. Stat., p. 232–253)

Annuity. 1. An annual allowance, payment, or income. 2. The return from an investment of capital with interest in a series of yearly payments. (Standard)

Annular borer. A tool with a tubular bit for removing a cylindrical core as a sample. Used in prospecting (Standard). *Compare* Diamond drill; Adamantine drill; Shot drill.

Annular kiln. A kiln having compartments. (Standard)

Anode. The positive terminal of an electric source, or more strictly the electrode by which the current enters an electrolyte on its way to the other pole. Opposed to Cathode. (Webster)

Anode copper. Crude-copper plates, usually cast from the converter, used as anodes in the electrolytic process of refining copper.

Anodo (Sp.). Anode. (Halse)

Anogene. An old name for rocks that have come up from below; *i. e.*, eruptive rocks. (Kemp)

Anomalies. As applied to crystals, refers to lack of harmony of optical phenomena with apparent symmetry of external form. (Dana)

Anomite. A variety of biotite. (Standard)

Anorthic. In crystallography, same as triclinic. (Standard)

Anorthite. An end-member of the plagioclase feldspar series, the one consisting of calcium-aluminum silicate and containing no sodium. The intermediate plagioclases may be regarded as mixtures of anorthite with the other end-member, albite (Ransome). *Compare* Albite.

Anorthite rock. A coarsely crystalline granitoid igneous rock that consists almost entirely of anorthite. It was observed on the Minnesota shore of Lake Superior. The rock is a feldspathic extreme of the gabbro group, practically an anorthosite formed of anorthite. (Kemp)

Anorthoclase. A triclinic feldspar closely related to the orthoclase group. Chiefy a soda-potash feldspar. (Dana)

Anorthosite. A name applied by T. Sterry Hunt to granitoid rocks that consist of little else than labradorite and that are of great extent in eastern Canada and the Adirondacks. The name is derived from *anorthose*, the French word for plagioclase, and is not to be confused with anorthite, with which it has no necessary connection, although anorthosite is used as a general name for rocks composed of plagioclase. The rocks are extremes of the gabbro group into whose typical members they shade by insensible gradations. (Kemp)

Anqueria (Peru). Silver ore which has the appearance of cubical galena. (Dwight)

Anquerita (Mex.). Ankerite. (Dwight)

Anta (Peru). Copper; *A. charca*, a copper mine. (Halse)

Antecedent. 1. Pertaining to or characterizing the internal movements of the earth concerned in the elevation of continental masses and their exposure to degradation. Contrasted with *consequent*. 2. Established previous to the displacement of a terrane by faulting or folding; as an *antecedent* valley, *antecedent* drainage. Contrasted with *consequent* and *superimposed*. Epigenetic. (Standard)

Antecedent streams. Streams that hold their early courses in spite of changes since their courses were assumed. (Chamberlin vol. 1, p. 161)

Anthraciferous. Yielding anthracite. (Webster)

Anthracite; Hard coal. A hard black lustrous coal containing 85 to 95 per cent carbon as against 70 to 85 per cent in bituminous or "soft" coal. *See also* Coal. (U. S. Geol. Surv.) Characterized by its small percentage of volatile matter, high specific gravity, hardness, nearly metallic luster, rich black color, and semiconchoidal fracture. It ignites with difficulty, produces an intensely hot fire, giving off no smoke, and burns with a very small blue flame of carbonic oxide (produced by incomplete combustion), which disappears after the coal is thoroughly ignited. Volatile matter is usually less than 7 per cent. (Chance)

Anthracolite. Same as Anthraconite. (Standard)

Anthraconite. A coal-black bituminous marble or limestone usually emitting a fetid smell when rubbed. Also called Stinkstone and Swinestone. (Webster)

Anthracosis. Chronic inflammation of the lungs, produced by inhaling particles of solid matter, as coal dust; the 'blacklung' of coal workers. (Standard)

Anthracoxenite. A black powder obtained from a resinoid material in the coal beds of Brandeisl, near Schlan, in Bohemia. The resin is treated with ether which dissolves the schlanite, leaving the insoluble portion, anthracoxenite. (Bacon)

Anthrax. A gem stone of the ancients; probably identical with the carbuncle. (Standard)

Anthraxolite. A black combustible coal-like substance of varying composition, occurring in Ontario and Quebec. (Bacon)

Anticaustic. 1. Checking or preventing the corrosive action of caustics. 2. Any remedy for arresting or mitigating the action of caustics. (Standard)

Anticlinal. Of, or pertaining to, an anticline. (Webster). The crest of an anticlinal roll may be the apex of a vein. (Tonopah Min. Co. *v.* West End Cons. Min. Co. 158 Pacific, p. 881)

Anticlinal flexure; Anticlinal fold. *See* Anticlinal; Anticline.

Anticlinal line or axis. In geology, the medial line of a folded structure from which the strata dip on either side. (Century)

Anticline. A fold or arch of rock strata, dipping in opposite direction from an axis. (Webster)

Anticlinorium. A series of anticlines and synclines, so grouped that taken together they have the general outline of an arch; opposed to Synclinorium. (Webster)

Antifriction metal. Any alloy having a low coefficient of friction: used for bearing surfaces. (Standard)

Antigos (Braz.). "Old men," or old workings (Halse). *Compare* Antiguo.

Antiguo, gua (Mex.). A mine worked by Spaniards or Mexicans at a time so remote (from 50 to 300 years) that particulars have been forgotten. (Weed)

Antimonial silver. Same as Dyscrasite. (Standard)

Antimonide. A binary chemical compound of which antimony is one constituent. (Webster)

Antimonio (Mex.). Antimony; *A. blanco*, valentinite; *A. rojo*, kermesite. (Dwight)

Antimonite. The native sulphide of antimony; stibnite. (Century)

Antimony. An element of metallic appearance and crystalline structure, tin-white in color, hard, and brittle. Occurs in free tate and combined in various minerals. Symbol, Sb; Atomic weight, 120.2. Specific gravity, 6.7. (Webster)

Antimony blende. Same as Kermesite.

Antimony bloom. A synonym for Valentinite, which is often found as an efflorescence (Chester). Sb_2O_3.

Antimony glance. Synonym for Stibnite. (A. F. Rogers)

Antimony ocher. A synonym for Stibiconite, *also* Cervantite.

Antimony ores. Native antimony; stibnite (sulphide of antimony); valentinite, and senarmontite (oxides). (Raymond)

Antimony regulus. An impure product of the smelting process: largely antimony sulphide. (Standard)

Antimony star. The fern-like marking on the upper surface of the metal antimony when well crystallized.

Antimony vermilion. 1. A fine vermilion pigment prepared by treating antimony chloride or tartar emetic with a thiosulphate, in solution. (Webster)
2. A sulphide of antimony suggested for, but never used as, a pigment. (Century)

Antimony white. Antimony trioxide, Sb_2O_3. (Webster)

Antisepsis. Prevention of sepsis by excluding or destroying micro-organisms. (Webster)

Antiseptic. That which may be used to destroy bacteria with little or no harmful effect on the living body. Very common antiseptics are aqueous solutions of carbolic acid and of corrosive sublimate.

Antitoxic. Counteracting poison. (Webster)

Antlerite. A light-green basic sulphate of copper, $3CuSO_4.7Cu(OH)_2$, found in Arizona. (Dana)

Antozonite. A dark violet-blue fluorite that emits an odor often causing nausea among miners. Formerly ascribed to hydrogen dioxide, but now known to be free fluorine.

Antracita (Mex.). Anthracite. (Dwight)

Anvil. 1. A block, usually of iron, steel-faced, and of characteristic shape on which metal is shaped, as by hammering and forging. (Webster)
2. An iron block placed between a stamp-mill mortar box and the foundation block; generally used in light mortars and concrete foundations.

Anvil vise. A vise of which an anvil forms one jaw. (Webster)

Apachite. A name suggested by Osann, from the Apache, or Davis mountains of western Texas, for a variety of phonolite, that varies from typical phonolites in two particulars: It has almost as much of amphibole and of ænigmatite as of pyroxene, whereas in normal phonolite the former is rare. The feldspar of the groundmass is generally microperthitic. (Kemp)

Apagar (Sp.). To quench; to extinguish; *A. un horno*, to blow out a furnace. (Halse)

Apalancar. 1. (Mex.) To move with a lever. (Dwight)
2. (Sp.) To get ore. (Halse)

Aparador (Mex.). Re-worker of tailings from silver mills. (Dwight)

Aparato (Mex.). Apparatus. (Dwight)

Aparejo (Mex.) 1. Packsaddle. 2. Any rough apparatus for moving heavy timbers, etc. (Dwight) A block and tackle.

Aparinar (Sp. Am.). To disclose indications of pay ore. (Lucas)

Apartado (Mex.). 1. Ore separation or concentration. Parting gold and silver. 2. The place where this work is performed. (Dwight)
3. Postoffice box. (Halse)

Apartador (Mex.). Hand-sorter of ore. (Dwight)

Apartar (Sp.). 1. To pick by hand, sort, cob, or break ore. 2. In assaying, to part. (Halse)

Apatelite. A hydrous ferric sulphate, found in yellow nodules in clay. (Chester)

Apatite. A calcium phosphate containing a little fluorine or chlorine, $Ca_4(CaF)(PO_4)_3$ or $Ca_4(CaCl)(PO_4)_3$. The fluor-apatite contains 42.3 per cent P_2O_5 and the chlor-apatite 41 per cent P_2O_5. (U. S. Geol. Surv.)

Apeador. A land surveyor. (Halse)

Apeadura (Sp.). Surveying. (Halse)

Apelmazado (Mex.). Compressed ground. (Dwight)

Apeo (Sp.). 1. Timbering; *A. por estacas*, piling, spiles. 2. Surveying. (Halse)

Aperador (Mex.). Storekeeper. (Dwight)

Aperos (Mex.). A general term for mining supplies. (Dwight)

Apex. 1. The tip, point, or angular summit of anything, as the apex of a mountain. The end, edge, or crest of a vein nearest the surface. (Webster)
2. The highest point of a stratum, as a coal seam. (Standard)
3. In geology, the top of an anticlinal fold of strata. This term, as used in United States Revised Statutes, has been the occasion of much litigation. It is supposed to mean something nearly equivalent to outcrop. (Century)
4. The highest point at which the ore or rock is found in place or between the walls of the vein, and not a "blow-out" or part of the vein

broken down outside the walls. In case the vein outcrops at the surface, any portion of such outcrop is the top, or apex. If the vein does not reach the surface, then the highest point to which the vein, or lode, can be traced is the apex—not necessarily the nearest point to the surface, but the absolute highest point. It is reasonable to believe that the top or apex was used instead of the word "outcrop," in order to cover "blind lodes," which do not crop out. The conception of an apex, which is properly a point, was probably taken from the appearance of a blind lode in a cross-section, where the walls appear as lines and the upper edge as a point. The term may also have been intended to cover the imaginary case of an ore deposit that terminates upward in a point. We may, however, dismiss from consideration the case of a simple point, and safely assume that the apex is the same as a top, and is either a line or a surface (Raymond).

The top or apex of a vein, within the meaning of the law, is the highest point of such vein where it approaches nearest to the surface of the earth, and where it is broken on its edge so as to appear to be the beginning or the end of the vein. (Stevens *v.* Williams, 23 Federal Cas., p. 46.)

The top or apex of a vein or lode is the end or edge or terminal of such vein or lode nearest the surface of the earth. It is not necessary that it should be on or near or within any given distance of the surface, but if found at any depth and the locator can define on the surface the area that will enclose it, then the vein or lode may be held by such location. (Iron Silver Min. Co. *v.* Murphy, 3 Federal, p. 373.)

The apex or top of a vein is the point where it ceases to continue in the direction of the surface. (Sloss-Sheffield Steel and Iron Co. *v.* Payne, 64 Southern, 617.)

The apex of a vein or lode is not necessarily a point, but may be a line of great length, and if a portion is found within the limits of a claim it is a sufficient discovery to enable the locator to obtain title. (Poplar Creek Consol. Quartz Mine, In re, 16 Land Decisions, p. 2; Larkin v. Upton, 144 U. S., p. 20; Debney v. Iles, 3 Alaska, p. 451.)

An apex of a vein is that part or portion of the terminal edge of a vein from which the vein has extension downward in the direction of the dip and the definition involves the elements of terminal edge and downward course therefrom. (Stuart Min. Co. *v.* Ontario Min. Co., 237 U. S., p. 360.)

(Additional cases are cited in U. S. Min. Stat., p. 105.)

Aphanite. An old name, now practically obsolete, for dense dark rocks, whose components are too small to be distinguished with the eye. It was chiefly applied to finely crystalline diabases. An adjective, aphanitic, is still more or less in current usage. (Kemp)

Aphanitic. Having a texture so fine that the individual grains or crystals can not be distinguished with the naked eye. (Ransome)

Aphanophyric. Containing phenocrysts in an aphanitic groundmass; said of some porphyritic igneous rocks. (La Forge)

Aphrite. A foliated or scaly white pearly calcite. Called also Earth foam and Foam spar. (Standard)

Aphrizite. A black variety of tourmaline. (Standard)

Aphrodite. A hydrous silicate of magnesium, in appearance much like meerschaum. (Chester)

Aphrosiderite. A chlorite-like mineral of scaly structure and olive-green color, near penninite in composition. (Chester)

Aphthitalite. A white saline potassium-sodium sulphate, $(K\,Na)_2\,SO_4$, crystallizing in the rhombohedral system. (Dana)

Aphthonite. A steel-gray argentiferous variety of tetrahedrite. (Standard)

Apilar (Sp.). To form a heap or pile. (Halse)

A pique (Mex.). Vertical. (Dwight)

Apique (Colom.). 1. Shaft. 2. Winze. 3. In alluvial mines, the point where the pump is placed. (Halse)

Apireo (Chile). Transporting ore on men's shoulders. *See also* Hapire. (Halse)

Apires (Peru). Ore carriers in mines. (Dwight)

Aplanador (Sp.). 1. A blacksmith's flatter. (Dwight)
2. An ingot hammer. 3. A riveter. (Halse)

Aplite. A term chiefly applied to finely crystalline muscovite-granite that occurs in dikes. Its original application was to granites poor or lacking mica. The name is from the Greek for simple. (Kemp)

Apo. The Greek preposition meaning "from," suggested by F. Bascom as a prefix to the names of various volcanic rocks to describe the devitrified or silicified varieties, that indicate their originals only by the preservation of characteristic textures, as apobsidian, aporhyolite, apobasalt, etc. Many rocks called by the old indefinite name petrosilex are of this character. (Kemp)

Apobsidian. Obsidian that has been devitrified by metamorphism. (Standard)

Apolvillado (Mex.). **1.** Ore of a superior grade (Dwight)
2. A second-class ore from the Veta Madre, Guanajuato, Mex., yielding about 750 ounces of silver per short ton. (Halse)

Apophyllite. A calcium-hydrogen silicate sometimes containing potassium and fluorine, $K_2O.8CaO.16SiO_2.16H_2O$. Occasionally used as a gem. (U. S. Geol. Surv.)

Apophysis. A branch from a vein or dike to which it is attached; an epiphesis is the same, but not attached. (Min. and Sci. Press, vol. 116, p. 694)

Aporhyolite. Rhyolite that has been more or less devitrified by metamorphism. (Standard)

Aporreador (Chile). A sledge hammer; a maul. (Halse)

Appalachian. Of, or pertaining to, a system of mountains in the eastern United States, also incorrectly called Allegheny from its western range. (Webster)

Appalachian coal field. The coal-producing area extending from northern Pennsylvania to Alabama in and adjacent to the Appalachian mountains.

Apparatus (No. of Eng.). **1.** The screening appliances upon the pit bank (at or near a mine). (Gresley)
2. Any complex device or machine designed or prepared for the accomplishment of a special purpose; also a collection of tools, appliances, materials, etc., as that necessary to the pursuit of a profession, as surgical or chemical apparatus. (Standard)

Apparent superposition. The actual or visible order in which strata lie in any locality. (Standard)

Apple coal (Scot.). *See* Yolk coal.

Appliances of transportation. As applied to a coal mine, these include the motor tracks, roadbed, cars, and motors used for the removal of coal from the mine. (Jaggie *v.* Davis Colliery Co., 84 Southwestern, p. 941)

Appolt oven. An oven for the manufacture of coke, differing from the Belgian in that it is divided into vertical compartments. (Raymond)

Approved. Accepted as suitable by a competent committee, board, or organization designated by those adopting the rules. (H. H. Clark) Applies to permissible explosives, safety lamps, motors, etc., as passed upon by the Bureau of Mines.

Apron. **1.** A canvas-covered frame set at such an angle in the miner's rocker that the gravel and water in passing over it are carried to the head of the machine. **2.** An amalgamated copper plate placed below the stamp battery, over which the pulp passes. The free gold contained in the pulp is caught by the quicksilver on the plate (Hanks). *See also* Copper plates.
3. A hinged extension of a loading chute. Commonly called Lip in Arkansas. (Steel)
4. A broad shallow vat for evaporating. **5.** A receptacle for conveying rock by means of a cable-way and trolley. **6.** An endless belt for conveying material of any kind; called also a Traveling apron. **7.** A shield of planking, brushwood, or other material, below a dam, along a seawall, etc. (Webster)
8. A sheet of sand and gravel lying for some distance in front of the terminal moraines of a glacier. Called also Frontal apron and Morainal apron. (Standard)

Apron plate. The large amalgamated plate, of copper or silvered copper, that receives the discharge from a stamp mill, or other crushing or screening apparatus, but sometimes placed in a separate building.

Apron roll. One of the rolls that carries a traveling apron. (Webster)

Apurador (Mex.). **1.** One who looks for particles of ore in waste waters. **2.** Men who rewash the ore from the *tinas*, or *patio* process. (Halse)

Apuradora (Sp.). 1. Long drills used in finishing a borehole. 2. A large vat used in the *patio* process in which the *bateas* are washed. (Halse)

Apurar; Purificar (Sp.). 1. To purify metals. 2. To clean up ores. 3. To consume. (Halse)

Apuro (Sp.). A cast-iron settling pot used in the *patio* process. (Halse)

Apyrous. Not changed by extreme heat, as mica: distinguished from Refractory. (Standard)

Aqua fortis. Nitric acid. Applied especially to the weaker grade of the commercial acid. (Webster)

Aquamarine. A transparent, light bluish-green beryl. Used as a gem. (U. S. Geol. Surv.)

Aqua regia. A mixture of nitric and hydrochloric acids. By the action of the chlorine evolved it dissolves gold or platinum. (Webster)

Aqueduct. An artificial elevated way for carrying water. (C. and M. M. P.)

Aqueo-glacial. Of, or pertaining to, or resulting from, the combined action of ice and water. (Webster)

Aqueo-igneous. Of, or pertaining to, or resulting from the joint influence of heat and water. (Webster)

Aqueous fusion. Melting in the water of crystallization. (Webster)

Aqueous lava. The mud lava formed by the mixture of volcanic ash with condensing volcanic vapor or other water. (Standard)

Aqueous rocks. Sedimentary rocks. *See also* Sedimentary.

Aquifer. A porous rock stratum that carries water. (Lowe)

Aquilatar (Sp.). *See* Quilatar.

Aragonite. Orthorhombic calcium carbonate, $CaCO_3$. *See also* Calcite. (Dana)

Aragonite group. Aragonite, bromlite, witherite, strontianite, and cerusite. (Standard)

Aragotite. A peculiar kind of bitumen found in the Sulphur Springs district of California, and also in the quicksilver mines of Lake, Yolo and Santa Clara counties, in the same State. Not to be confused with Aragonite. (Mitzakis)

Aralo-Caspian. In physical geography, a term applied to the extensive basin or depressed area occupied by the Aral and Caspian Seas, and which is a true "basin of continental streams," having no communication with the ocean. (Page)

Arancel (Peru). A list of fees payable to Government engineers, for surveying, marking out boundaries, etc. (Halse)

Arborescent. Applied to minerals when assuming a tree-like form, more especially when fairly massive; if so thin as to resemble the painting of a tree they are generally termed Dendrites. (Power)

Arcanite. Same as Aphthitalite. (Dana)

Arch. 1. (Corn.) A portion of a lode left standing when the rest is extracted, to support the hanging wall or because it is too poor for profitable extraction. (Raymond). Ground unworked near a shaft. (Bainbridge)
2. One of the fire chambers of a brick kiln; also the fire chamber in certain kinds of furnaces and ovens, from the arched roof. (Webster)
3. The roof of a reverberatory furnace. (Raymond)

Archæan; Archean. Ancient. The term is sometimes used as the equivalent of Pre-Cambrian, but is restricted by the U. S. Geol. Surv. and most American geologists to the oldest stratified rocks.

Arch brick. 1. Commonly applied to those brick taken from the arches of a kiln. They are usually overburned. (Ries)
2. A wedge-shaped brick used in building an arch. (Webster)

Arched (Corn.). Said of the roads in a mine, when built with stones or bricks. (Min. Jour.)

Archemy. A variant of Alchemy. (Century)

Archeozoic. 1. The era during which, or during the later part of which, the oldest system of rocks was made. (Chamberlin)
2. Belonging to the last of three subdivisions of Archean time, when the lowest forms of life probably existed. (Standard)

Archetto (It.). A wire stretched on a forked or bent stick for smoothing potter's clay in molding. (Standard)

Archimedean screw. A spiral screw, fitting closely in a tube, for raising water or other liquids; often used as a screw conveyor for grain, sand, gravel, and fine ore.

Archimedes limestone. One of the subordinate beds of the lower Carboniferous series. (Emmons, 1860)

Arching (Eng.). Brickwork or stonework forming the roof of any underground roadway. (Gresley)

Archolithic. Of or pertaining to the earliest sedimentary rocks, as the Laurenthian and Silurian. (Standard). The term is not in common usage.

Arcilla (Mex.). Clay (Dwight). Kaolin.

Arcilloso (Mex.). Argillaceous. (Dwight)

Arcose. Same as Arkose. (Standard)

Arc welding. *See* Electric welding.

Ardennite. A yellow to yellowish-brown vanadio-silicate of aluminum and manganese that crystallizes in the orthorhombic system. (Dana)

Área (Sp.). A square of 10 meters on each side, equivalent to about 143 sq. *varas*. (Halse)

Areal geology. That branch of geology which pertains to the distribution, position, and form of the areas of the earth's surface occupied by different sorts of rock or different geologic formations, and to the making of geologic maps. (La Forge)

Areia (Port.). Sand, gravel; *A. movediça*, quicksand; *A. preta*, black sand (Halse). *Compare* Arena.

Arena (Sp.) Sand or grit; *A. de oro*, gold-bearing sand; *A gorda*, coarse sand or gravel. (Halse)

Arenaceous. An adjective applied to rocks that have been derived from sand or that contain sand. (Kemp) Not to be confounded with siliceous.

Arendalite. A dark-green crystalline epidote. (Standard)

Areng (Borneo). A yellowish gravelly earth, sometimes containing diamonds. (Lock)

Arenilitic. Of or pertaining to sandstone. (Standard)

Arenilla. 1. (Sp.) Fine sand. 2. (Venez.) Black, magnetic-iron sand. 3. (Colom.) Titaniferous iron ore. 4. (Chile) Copper matte mixed with slag; also specular iron ore. (Halse) 5 (Mex.). Tailings; refuse earth. (Dwight)

Arenisca (*piedra arenisca*) (Mex.). Sandstone. (Dwight)

Arenose. Full of grit or fine sand; gritty. (Standard)

Arenoso (Sp.). Sandy; gravelly; gritty. (Vel.)

Areometer. An instrument for measuring the specific gravity of liquids; a hydrometer. (Standard)

Arents tap. An arrangement by which the molten lead from the crucible of a shaft furnace is drawn through an inverted siphon into an exterior basin, from which it can be ladled without disturbing the furnace. (Raymond)

Arfvedsonite. A slightly basic metasilicate of sodium, calcium, and ferrous iron. One of the amphibole group. (Dana)

Argal. *See* Argol.

Argall furnace. A reverberatory roasting furnace of which the hearth has a reciprocating movement whereby the ore is caused to move forward by the action of rabbles extending across the hearth. (Ingalls, p. 116.)

Argall tubular furnace. A tubular roasting furnace consisting of 4 brick-lined steel tubes 30 feet long nested together inside two steel tires, which revolve upon steel-faced carrying rolls. (Ingalls, p. 121.)

Argamasa. 1. (Sp.). Lime mortar. (Dwight)
2. *A. hidráulica*, cement mortar or hydraulic cement. 3. (Sonora, Mex.) A cement gravel, or conglomerate containing mica, hematite, black sand, and quartz cemented with calcite. (Halse)

Argental mercury. A silver amalgam. (Standard)

Argentiferous. Containing silver.

Argentina. In ceramics, unglazed porcelain coated by a chemical process with gold, silver, or copper. (Standard)

Argentine. 1. A lamellar variety of calcite with a pearly white luster. (Chester)
2. Silver-coated white metal. 3. A finely divided tin moss or sponge obtained from a solution of tin by precipitation with zinc. (Standard)

Argentine flowers of antimony. The tetroxide of antimony. (Century)

Argentite; Silver glance. A silver sulphide, Ag_2S. Contains 87 per cent silver. (U. S. Geol. Surv.)

Argentopyrite. A silver and iron sulphide occurring in small hexagonal prisms. (Chester)

Argentum (L.). Silver, the chemical symbol of which is Ag.

Argil. 1. Potters' clay; white clay. 2. Same as Aluminite. (Standard)

Argile plastique (Fr.). A clay near the base of the Tertiary system in France; used for pottery purposes. (Page)

Argillaceous. Containing clay, either soft or hardened, as in shale, slate, argillite, etc.; applied to minerals having the odor of moistened clay.

Argillaceous sandstone. A sandstone containing a considerable proportion of clay. (Bowles)

Argillite. 1. A thick-bedded argillaceous sedimentary rock without distinct slaty cleavage or shaly fracture; mudrock: sometimes called Pelite. 2. A clay slate: in this sense a metamorphic rock with true slaty cleavage. The term is probably more generally used in the first sense in the United States and in the second sense abroad. (La Forge)

Argillo-arenaceous. Composed of or containing clay and sand. (Standard)

Argillo-calcareous. Composed of or containing clay and lime. (Standard)

Argillo-calcite. A clayey calcite. (Standard)

Argillo-ferruginous. Composed of or containing clay and iron. (Standard)

Argillo-magnesian. Composed of or containing clay and magnesia or magnesium. (Standard)

Argirosa (Sp.). Dark ruby silver. (Halse)

Argol. Unrefined or crude tartar. A hard crust of potassium bitartrate formed on the sides of vessels in which wine has been fermented. Also written, Argal, Argoll, Argall, Orgal (Century). Used extensively in assaying for its reducing power.

Argon. A colorless odorless gas in the air, of which it constitutes almost 1 per cent by volume. Symbol, A; atomic weight, 39.88. Specific gravity, 1.4. (Webster)

Argyrite. Same as Argentite. Also called Argyrose. (Standard)

Argyropyrite. A silver-iron sulphide $Ag_3Fe_7S_{11}$, similar to argentopyrite, that crystallizes in the hexagonal system (Standard). Probably the same as Argentopyrite.

Argyrose. Same as Argentite. (Standard)

Argyrythrose. Same as Pyrargyrite. (Standard)

Arid. Parched with heat; without moisture; very dry; barren; specifically, having little or no rainfall and requiring artificial irrigation. (Standard)

Ariegite. A name given by A. Lacroix to a special family of granitoid rocks, consisting primarily of monoclinic pyroxene and spinel. Subvarieties result from the presence of amphibole and garnet. The rocks are found in the French Pyrenees, in the department of Ariege, from which they take their name. They are most closely related to the pyroxenites. (Kemp)

Arista (Sp.). The intersection line of two planes. (Dwight)

Arite. A nickel mineral intermediate between niccolite and breithauptite. (Dana)

Arkansas stone. A true novaculite (*see* Novaculite) used as an oilstone for sharpening tools or instruments. Found in the Ozark Mountains of Arkansas. (Pike)

Arkansite. A variety of brookite from Magnet Cove, Arkansas. (Century)

Arkite. A name based on the common abbreviation Ark. for Arkansas, and given by H. S. Washington to a rock that occurs near the Diamond Jo quarry, Magnet Cove, Ark. The rock was earlier called leucite-porphyry, by J. F. Williams. (Kemp)

Arkose. 1. A sandstone rich in feldspar fragments, as distinguished from the more common richly quartzose varieties. (Kemp)
2. A sedimentary rock composed of material derived from the disintegration of granite, transported and redeposited with little sorting. (La Forge)

Arkosic. Having wholly or in part the character of arkose.

Arlequines (Mex.). Precious opals. (Lucas)

Arles, or Earles (No. of Eng.). Earnest money formerly allowed to colliers at the time of hiring them. (Gresley)

Arm. 1. The inclined member or leg of a set or frame of timber. (Raymond)
2. An inlet of water from the sea or other body of water. (Webster)

Armar (Mex.). To erect or fit up machinery, etc. (Dwight)

Armature. 1. A piece of soft iron or steel used to connect the poles of a magnet or of adjacent magnets. 2. That part of a dynamo-electric machine carrying the conductors whose relative movement through the magnetic field between the pole pieces causes an electric current to be induced in the conductors (as in a dynamo); or which by having a current passed through them are caused by electro-magnetic induction to move through this field (as in a motor). (Webster)

Armazón; Armadura (Sp.). Any framed structure, truss, trestle, etc. (Dwight)

Armenian stone. An old name for azurite, alluding to a locality in which it is found. (Chester)

Armenite (Armenia). A synonym for Azurite; Armenian stone. (Chester)

Aromatic compounds. Compounds derived from the hydrocarbon benzene (C_6H_6), distinguished from those derived from methane (CH_4). (Standard)

Aromatite. A bituminous stone resembling myrrh in color and odor. (Standard)

Arquerite (Chile). Silver amalgam, containing only a small proportion of mercury. (Chester)

Arrage. A sharp edge or corner in a drift. Called also Arris. (Standard)

Arranque (Sp.). Breaking ground, winning, or mining; *A. mecánico*, rock drilling by machinery; *A. trabajo*, a working place. (Halse)

Arrastrador (Mex.). Slag-pot puller. (Dwight)

Arrastrar (Mex.). 1. To drag along the ground; to haul or convey. 2. To unite as veins and form one. *A. el agua.* To remove the water from a sump or working. (Halse)

Arrastre (Sp.). 1. Apparatus for grinding and mixing ores by means of a heavy stone dragged around upon a circular bed. The arrastre is chiefly used for ores containing free gold, and amalgamation is combined with the grinding. Sometimes incorrectly written *arraster, arrastram*, or *raster* (Raymond). *A. de cuchara*, an arrastre driven by rough impact waterwheel, the blades of which are called *cucharas*. *A. de marca*, a large arrastre. *A. de mula*, mule-power arrastre. *A. de mano*, a hand arrastre for sampling purposes. 2. Haulage or conveyance. *A. interior*, underground haulage. 3. *A. de uncriadero*, footwall or floor of a deposit. (Halse)

Arrastrero. One who works an arrastre. (Halse)

Arreador; Arriero. 1. (Mex.) The mule driver on a hoisting whim. (Dwight)
2. (Bol.) A man who follows ore carriers to see that they do not steal ore. (Halse)

Arrebol (Mex.). The jerking of a rope as a signal to miners underground. (Dwight)

Arrested anticline. A term applied by Orton to a gentle monocline in the natural-gas fields of Ohio. (Ore Dep., p. 11)

Arriero (Mex.). Muleteer. (Dwight)

Arriñonada (Sp.). Botryoidal. (Dwight)

Arris. Same as Arrage.

Arris-cleat (Aust.). A strip of wood having a triangular cross-section used for keeping brattices in position. (Power)

Arroba (Mex.). Twenty-five pounds. (Dwight)

Arroyo (Sp.). A small stream, or its dry bed; in geology, a deep dry gully. (Standard)

Arrugia (Sp.). A deep gold mine. (Halse)

Arsenic. A solid brittle element of tin-white to steel-gray color and metallic luster, occuring free and also combined in various minerals. Symbol, As; atomic weight, 74.96. Specific gravity, 5.7. (Webster)

Arsénico (Sp.). Arsenic. (Dwight)

Arsenical nickel. A synonym for Niccolite.

Arsenical pyrite. A synonym for Arsenopyrite. (A. F. Rogers)

Arsenicite. Same as Pharmacolite. (Standard)

Arsenious. Pertaining to, or containing, arsenic; said of compounds in which arsenic is trivalent. (Webster)

Arsenite. Same as Arsenolite.

Arsenolamprite. A metallic lead-gray variety of native arsenic containing bismuth. (Standard)

Arsenolite. A white arsenious oxide, As_2O_3, with occasional yellow or red tinge, crystallizing in the isometric system. (Standard)

Arsenopyrite; Mispickel. A sulph-arsenide of iron, FeAsS. Contains 46 per cent arsenic, equivalent to 57.7 per cent white arsenic, As_2O_3. (U. S. Geol. Surv.)

Arsentine plate. German silver. (Standard)

Arshine (Russ.). A measure of volume equal to 12.7 cu. ft

Arsine. Arseniureted hydrogen, AsH_3. (Standard)

Artesian. Of, or pertaining to Artois, anciently called Artesium, in France (Webster). *See also* Artesian well.

Artesian casing. *See* Screwed casing.

Artesian well. 1. A well bored down to a point, usually at great depth, where the water pressure, owing to the conformation of the strata, is so great as to force the water to the surface. 2. Often applied to any deep-bored well, even where pumping is necessary, as in an ordinary driven well. (Standard)

Artificial mineral. A mineral formed artificially, as in the laboratory, and so distinguished from one found in nature (Standard). A synthetic mineral.

Artificial soft porcelain. Porcelain with a body resembling glass consisting chiefly of alkaline salts and coated with a lead glaze, as the early tender porcelain of Sèvres. (Standard)

Artificial stone. A stony substance formed from certain basic natural materials which in the course of manufacture undergo chemical changes whereby an entirely new material is created. This new substance is then crushed, graded, molded into desired shapes and baked under intense heat in kilns or ovens. Often used as an abrasive. (Pike)

Aruppukarans. A gold-washing caste in Madras. (Lock)

Arvonian rock. A rock consisting of quartz-felsites, hälleflintas, and breccias, characteristic of the Cambrian or an earlier period in Wales. (Standard)

Asbestiform. Formed like or resembling asbestos; fibrous: said of stones. (Standard)

Asbesto (Sp.). Asbestos; *A. leñoso*, ligniform asbestos; *A. de corcho*, mountain cork. (Halse)

Asbestos. White, gray, or green-gray fibrous variety of amphibole, usually one containing but little aluminum, as tremolite or actinolite; also, improperly, a fibrous serpentine or chrysotile. Called also Earth-flax, Mountain-cork, and Amianthus. (Standard)

Asbolite. An earthy manganese mineral (wad) containing oxide of cobalt, which sometimes amounts to 32 per cent. (Dana)

Ascendente (Sp.). Working upward. (Lucas)

Ascensional ventilation (Eng.). The arrangement of the ventilating currents so that the vitiated air shall rise continuously until reaching the surface. Particularly applicable to steep coal seams. (Gresley)

Ascension, infiltration by. The theory of infiltration by ascension in solution from below considers that ore-bearing solutions come from the heated zones of the earth, and that they rise through cavities, and at diminished temperatures and pressures deposit their burdens. (Ore Dep., p. 40)

Ascension theory. The theory that the matter filling fissure veins was introduced in solution from below. (Raymond)

Aschaffite. A name suggested by Gümbel for a dike rock occurring near Aschaffenburg, Bavaria. It is defined by Rosenbusch as a dioritic dike rock containing quartz and plagioclase, with biotite as the chief dark silicate. (Kemp)

Aschistic. A term applied by Brögger to dikes that are direct branches from larger intrusive masses and have essentially the same composition. (Daly, p. 39)

Asentador (Sp.). 1. A stonemason. 2. A settler used in ore dressing. (Halse)

Asentar el hoyo (Sp. Am.). To wash away the overburden. (Lucas)

Asentar planes (Colom.). To place dies or other resisting material below the stamps preliminary to crushing. (Halse)

Aserrador (Sp.). A sawyer. (Halse)

Aserrar (Sp.). To saw. (Dwight)

Asfalto (Sp.). Asphalt. (Dwight)

Ash; Volcanic ash. Tuff that in color, texture, and general appearance resembles ashes. (La Forge)

Ash-ball (Shrop). A mixture of small fragments of greenish clay, quartz, etc. (Gresley)

Ash-bed. A deposit of volcanic ash.

Ash-bed diabase. A rock on Keweenaw Point, Lake Superior, resembling a conglomerate, but which is interpreted by Wadsworth as a scoriaceous amygdaloidal sheet into which much sand was washed in its early history. (Kemp)

Ashes. The earthy or mineral part of combustible substances remaining after combustion, as of wood or coal. (Webster)

Ash furnace. A furnace or oven for fritting materials for glass making. (Webster)

Ashlar. 1. A block of stone, as brought from the quarry. 2. A squared stone. 3. Mason work of squared stones. (Standard)
4. A facing of cut stone applied to a backing of rubble or rough masonry or brickwork (C. and M. M. P.) Also called Bastard ashlar.
5. A thin brick made especially for facing walls. (Webster)

Ash oven. An ash furnace. (Standard)

Ash pit. The receptacle for ashes under a grate.

Ash's furnace. A furnace for refining spelter. (Ingalls, p. 571)

Asiderite. Daubrée's name for stony meteorites that lack metallic iron. (Kemp)

Asiento (Mex.). 1. The concentrate in panning. 2. *A. mineral,* mineral region. (Dwight)

Asin (Philippines). Salt. (Standard)

Aslope (Corn.). In a slanting position. (Crofutt)

Asmanite. An orthorhombic variety of silica found in meteoric iron. (Standard)

Asombrarse (Sp.). Said of a lode when it varies its dip so as to become almost horizontal. (Lucas)

Aspa. 1. (Peru) Intersection or junction of two veins. (Dwight)
2. (Sp.). In gold milling, a tappet.
3. Two timbers in the form of a cross to operate an endless chain device for hoisting water. *See also* Noria, 1. (Halse)

Asparagus stone. A greenish-yellow variety of apatite. (Power)

Asperite. A collective name suggested by G. F. Becker for the rough cellular lavas whose chief feldspar is plagioclase, but of which it is impossible to speak more closely without microscopic determination. The name is intended for general field use much as trachyte was employed in former years. It is coined from the Latin word for rough. (Kemp)

Asperolite. A variety of chrysocolla, containing more than the usual percentage of water. (Chester)

Asperón (Mex.). Sandstone; Grindstone. (Dwight)

Asphalt. 1. A complex compound of various hydrocarbons, part of which are oxygenated. Related in origin to petroleum. Is brown or brownish black in color, melts at 90° to 100° F., and is mostly or wholly soluble in turpentine. *See also* Albertite, Elaterite, Gilsonite, Grahamite, Impsonite, Nigrite, Wurtzilite (U. S. Geol. Surv.). Also called Mineral pitch. Same as Asphaltum.
2. To cover or treat with asphalt.

Asphalt-base petroleum. Asphalt-base oils contain asphalt and no paraffin. They are distilled to asphalt, and the distillates are cut according to gravity; such oils do not yield steam-refined cylinder stock or paraffin wax. *See also* Paraffin-asphalt petroleum . (Bacon)

Asphalt-block pavement. A pavement having a wearing course of previously prepared blocks of asphaltic concrete. (Bacon)

Asphalt cement. A fluxed or unfluxed asphaltic material, especially prepared as to quality and consistency; suitable for direct use in the manufacture of asphaltic pavements. (Bacon)

Asphalted. Coated with asphalt. Usually Californian oil (which has an asphaltic base), coal tar, gilsonite or elaterite are added to give the right consistence to suit the average temperature that prevails when the coating is used. (Nat. Tube Co.)

Asphaltenes. The components of the bitumen in petroleum, petroleum products, malthas, asphalt cements, and solid native bitumens, that are soluble in carbon disulphide, but insoluble in naptha (petroleum spirit.) *See also* Petrolene. (Bacon)

Asphalt furnace. A portable furnace in which asphalt is heated for use in roofing, paving, etc. (Century.)

Asphaltic. Similar to, or essentially composed of, asphalt. (Bacon)

Asphaltic flux. *See* Flux, 2. The asphaltic flux is differentiated from paraffin flux and semi-asphaltic flux by a greater density, nearly that of water; by the absence of hard paraffin scale, and by the fact that the unsaturated hydrocarbons predominate. It yields a larger amount of ash-free residual coke on ignition than other fluxes. (Bacon)

Asphaltic sandstone. *See* Sandstone; Asphalt rock.

Asphaltite. A dark-colored, solid, difficultly fusible, naturally occurring hydrocarbon complex, insoluble in water, but more or less completely soluble in carbon disulphide, benzol, etc. (Bacon)

Asphalt rock. Asphalt stone. Limestone impregnated with asphalt (Webster). Also a term applied to asphaltic sandstone.

Asphalt stone. *See* Asphalt rock.

Asphaltum. *See* Asphalt, 1.

Aspirador (Mex.). An aspirator; an exhauster. (Halse)

Aspirail (Fr.). An opening for ventilation. (Davies)

Aspirator. An inhaler. (Standard)

Assay. 1. To test ores or minerals by chemical or blowpipe examination. To determine the proportion of metals in ores by smelting in the way appropriate to each. Gold and silver require an additional process called cupelling, for the purpose of separating them from the base metals. *See* Fire assay. 2. An examination of a mineral, an ore, or alloy differing from a complete analysis in that it determines only certain ingredients in the substance examined, whereas an analysis determines everything it contains.

Assay balance. A sensitive balance used in the assaying of gold, silver, etc., for weighing the beads, or prills. (Webster)

Assayer. One who performs assays.

Assay foot. The assay value multiplied by the number of feet across which the sample is taken. (H. C. Hoover, p. 10)

Assay inch. The assay value multiplied by the number of inches over which the sample was taken. (H. C. Hoover, p. 10)

Assay master. A chief or official assayer. (Standard)

Assay office (U. S.). A laboratory for examining ores, especially gold and silver ores, in order to determine their economic value. (Standard)

Assay pound. A small standard weight used in assaying bullion, etc., sometimes equaling a half gram, but varying with the assayer. (Webster)

Assay ton. A weight of 29.166+ grams used in assaying, for convenience. Since it bears the same relation to the milligram that a ton of 2000 pounds does to the troy ounce the weight in milligrams of precious metal obtained from the assay of an ore gives directly the number of ounces to the ton. (Webster)

Assay value. The amount of the gold or silver, in ounces per ton of ore, as shown by assay of any given sample. *Average assay value.* The weighted result obtained from a number of samples, by multiplying the assay value of each sample by the width or thickness of the ore face over which it is taken, and then dividing the sum of these products by the total width of cross section sampled. The result obtained would represent an average face sample.

Assessment. 1. The sum that the officers of a mining company levy on the stock held by shareholders. (Hanks)
2. *See* Assessment work.

Assessment work. The annual work upon an unpatented mining claim on the public domain necessary under the United States law for the maintenance of the possessory title thereto. Same as Annual labor. (Min. Stat., pp. 233–253)

Asta (Sp.). A shaft or spindle; *A. de bomba*, a pump rod; *A. de bandera*, flagstaff. (Halse)

Astatki; Ostatki. A Russian name for a petroleum residue now used as fuel. Until 1870 it was considered a useless article, and was disposed of by burning in open pits near the refineries. (Mitzakis)

Astel. Overhead boarding or arching in a mine gallery. (Raymond)

Asteriated quartz. A phenocrystalline variety of quartz having whitish or colored radiations within the crystals: called also Star-quartz. (Standard)

Asterism. The name given to the peculiar starlike rays of light observed in certain directions in some minerals. (Dana)

Astiaes (Port.). The sides or walls of an oven. (Halse)

Astillero (Mex.). A place in a forest where firewood is cut; an open forest; a pasture for mules, etc. (Halse)

Astral. 1. The stage in earth growth when it glowed with incandescent heat, like a star. (Lowe)
2. Pertaining to the earliest of three subdivisions of Archean time, that of the fluid globe surrounded by a heavy vaporous envelope. (Standard) Now obsolete.

Astraline. A Russian petroleum product possessing the specific gravity 0.850–0.860, a flash point not less than 50° C. (122° F.), and of a pale yellowish color. (Bacon)

A-stretching (Scot.). In the line of the strike of the strata; level course. (Barrowman)

Astringent. A taste that puckers the mouth (George). Said of certain minerals.

Astyllen. 1. (Corn.) A mine stopping to prevent the flow of water; a dam. 2. A wall to separate ore from waste. (Pryce)

Asymmetrical. 1. Without proper proportion of parts; unsymmetrical. 2. Crystals not divisible into similar halves by a plane; triclinic (Standard). Also used in geology in describing structural features.

Asymmetric class. The class of crystal forms without any symmetry. (A. F. Rogers)

Asymmetric dispersion. The dispersion that produces an interference figure without any symmetry of color distribution. (A. F. Rogers)

Atacadero (Sp.). A rammer; a tamping bar. (Halse)

Atacamite. A basic chloride of copper, $Cu_2ClH_3O_3$, containing 59.4 per cent copper (Dana). Also called Green sand of Peru. (Chester)

Atacar (Peru). To tamp. (Mex.). To express mercury from a canvas bag by beating it with a stick. (Dwight)

Atajador (Sp.). A boy who attends the mules, horses, or burros; a hostler. (Crofutt)

Ataje (Colom.). A natural obstruction that diverts water from its regular channel. (Halse)

Ataques (Mex.). Rubbish. (Dwight)

Atecas (Mex.). Men who carry water from the bottom workings of a mine, by use of bags or buckets, to a sump from which it can be pumped to the surface. (Halse)

Atelene. Lacking the essential form; imperfect (Standard). Said of crystals.

Atelestite. A sulphur-yellow adamantine bismuth arsenate. $H_2Bi_3AsO_8$, crystallizing in the monoclinic system. (Standard)

Atelite. A green copper hydroxychloride, $H_8Cu_3O_5Cl_2$, found near volcanoes. (Standard)

Aterrar (Port.). To fill with waste; to pack. (Halse)

Aterro (Port.). Attle; waste rock. (Halse)

Atierres (Mex.). Waste rock in a mine. (Dwight)

Atincar (Sp.). Refined tincal; borax of commerce. (Halse)

Atinconar (Sp.) To secure the walls provisionally with stulls. (Halse)

Atiz (Colom.). Poles for lagging. (Halse)

Atizador (Sp.). 1. A man who attends the furnace; a stoker. 2. A dresser of *magistral*. 3. (Colom.) A battery feeder. (Halse).

Atlasite. A cupric carbonate containing chlorine. Probably a mixture of atacamite and azurite. (Standard)

Atmosphere. 1. The whole mass of air surrounding the earth. 2. The pressure of air at the sea level used as a unit. *See also* Atmospheric pressure. (Webster)

Atmospheric pressure. The pressure of air at the sea level, exerted equally in all directions. The standard pressure is that under which the mercury barometer stands at 760 millimeters. It is equivalent to about 14.7 pounds to the square inch. (Webster)

Atoll. A coral island of circular form, inclosing a lagoon.

Atom. According to the atomic theory, the smallest particle of an element that can exist either alone or in combination with similar particles of the same or of a different element; the smallest particle of an element that enters into the composition of a molecule. (Webster)

Atomic weight. The weight of an atom of a chemical element as compared with that of an atom of hydrogen. (Standard)

INTERNATIONAL ATOMIC WEIGHTS, 1918.

On account of the difficulties of correspondence between its members, due to the war, the International Committee on Atomic Weights has decided to make no full report for 1918. Although a good number of new determinations have been published during the past year, none of them seems to demand any immediate change in the table for 1917. That table, therefore, may stand as official during the year 1918.

F. W. CLARKE, *Chairman.*

	Symbol.	Atomic weight.
Aluminum	Al	27.1
Antimony	Sb	120.2
Argon	A	39.88
Arsenic	As	74.96
Barium	Ba	137.37
Bismuth	Bi	208.0
Boron	B	11.0
Bromine	Br	79.92
Cadmium	Cd	112.40
Caesium	Cs	132.81
Calcium	Ca	40.07
Carbon	C	12.005
Cerium	Ce	140.25
Chlorine	Cl	35.46
Chromium	Cr	52.0
Cobalt	Co	58.97
Columbium	Cb	93.1
Copper	Cu	63.57
Dysprosium	Dy	162.5
Erbium	Er	167.7
Europium	Eu	152.0
Fluorine	F	19.0
Gadolinium	Gd	157.3
Gallium	Ga	69.9
Germanium	Ge	72.5
Glucinum	Gl	9.1
Gold	Au	197.2
Helium	He	4.00
Holmium	Ho	163.5
Hydrogen	H	1.008
Indium	In	114.8
Iodine	I	126.92
Iridium	Ir	193.1
Iron	Fe	55.84
Krypton	Kr	82.92
Lanthanum	La	139.0
Lead	Pb	207.20
Lithium	Li	6.94
Lutecium	Lu	175.0
Magnesium	Mg	24.32
Manganese	Mn	54.93
Mercury	Hg	200.6
Molybdenum	Mo	96.0
Neodymium	Nd	144.3
Neon	Ne	20.2
Nickel	Ni	58.68
Niton (radium emanation)	Nt	222.4
Nitrogen	N	14.01
Osmium	Os	190.9
Oxygen	O	16.00
Palladium	Pd	106.7
Phosphorus	P	31.04
Platinum	Pt	195.2
Potassium	K	39.10
Praseodymium	Pr	140.9
Radium	Ra	226.0
Rhodium	Rh	102.9
Rubidium	Rb	85.45
Ruthenium	Ru	101.7
Samarium	Sa	150.4
Scandium	Sc	44.1
Selenium	Se	79.2
Silicon	Si	28.3
Silver	Ag	107.88
Sodium	Na	23.00
Strontium	Sr	87.63
Sulphur	S	32.06
Tantalum	Ta	181.5
Tellurium	Te	127.5
Terbium	Tb	159.2
Thallium	Tl	204.0
Thorium	Th	232.4
Thulium	Tm	168.5
Tin	Sn	118.7
Titanium	Ti	48.1
Tungsten	W	184.0
Uranium	U	238.2
Vanadium	V	51.0
Xeno	Xe	130.2
Ytterbium (Neoytterbium)	Yb	173.5
Yttrium	Yt	88.7
Zinc	Zn	65.37
Zirconium	Zr	90.6

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Atomization. 1. The method by which a jet of steam, or compressed air, is made to finely divide a fluid, as in an oil-burning furnace.
2. A patent process for producing a metallic dust, as zinc dust.

Atomizer. An apparatus for converting liquid into spray. *See also* Atomization.

Atrancar (Mex.). To drill (for blasting) at a very acute angle. (Dwight)

Attal. *See* Attle.

Attle; Attal. 1. (Corn.) Rubbish; rock containing too little ore to be worth working. (Whitney)
2. (No. of Eng.) To arrange or settle, as an account. (Gresley)

Atreol. A petroleum product produced by the action of sulphuric acid on certain petroleum distillates. Properly refined and combined with ammonia, it produces the active principle of atreol,—ammonium atreolate. It is soluble in water and alcohol, and is miscible with petroleum and lanolin.

Attrition. Act of rubbing together; friction; act of wearing, or state of being worn; abrasion. (Webster)

Aturdir (Mex.). To subdivide, mechanically, the quicksilver in a *torta* so as to quicken its action upon the mineral treated. (Dwight)

Auerlite. A silico-phosphate of thorium containing about 70 per cent thorium. Like zircon in form. (U. S. Geol. Surv.)

Aufre (Sp. Am.). A very hard yellow stone; sulphur-like rock. (Lucas)

Augen. The German word for eyes; used as a prefix before various rock names, but more especially gneiss, to describe larger minerals or aggregates of minerals, that are in contrast with the rest of the rock. In the gneisses, feldspar commonly forms the augen. They are lenticular with the laminations forking around them, in a way strongly suggesting an eye. The term is seldom used in any other connection than with gneiss in America. (Kemp)

Auger. An instrument for boring or perforating soils or rocks. A carpenter's tool for boring wood (Webster). A tool for drilling holes in coal for blasting.

Auger machine. A machine for the manufacture of zinc-distillation retorts. Similar to machines used for manufacturing drain pipes. (Ingalls, p. 234)

Auger-nose shell (Eng.). A clearing tool used in boring for coal, etc., having an auger-shaped end (Gresley). *See also* Wimble.

Auger stem. The iron rod to which the bit is attached in well drilling. (Standard)

Auger-stem guides. *See* Sinker-bar guides.

Auget; Augette. A priming tube, used in blasting. (Raymond)

Augite. The commonest rock-making pyroxene. As distinguished from other pyroxenes augite refers to the dark varieties with considerable alumina and iron. The name is used as a descriptive prefix to many rocks that contain the mineral, as for instance augite-andesite, augite-diorite, augite-gneiss, augite-granite, augite-syenite, etc. (Kemp)

Augitite. Non-feldspathic, porphyritic rocks consisting essentially of a glassy groundmass, with disseminated augite and magnetite. Various minor accessories also occur. (Kemp)

Augitophyric. In petrology, containing distinct crystals of augite. (Standard)

Augustin process. The treatment of silver ores by chloridizing roasting, lixiviation with hot brine, and precipitation on copper. (Raymond)

Aumento (Bol.). In the *patio* process, the apparent increase in the amount of mercury used when treating ores containing a large percentage of silver; in reality due to loss of mercury. (Halse)

Auquis (Peru). Rock drillers in mines. (Dwight)

Auralite. Altered iolite. (Standard)

Aureola azul (Sp.). The blue cap or halo of a candle or lamp in an atmosphere containing fire damp. (Halse)

Aureole. The area that is affected by contact metamorphism around an igneous intrusion. (Kemp)

Auri-argentiferous. Containing both gold and silver; applied to minerals. (Standard)

Auric. Of, pertaining to, or containtaining gold, especially when combined in its highest or triad valency, as auric chloride, $AuCl_3$. (Standard)

Aurichalcite. A basic carbonate of zinc and copper, $2(Zn,Cu)CO_3 \cdot 3(Zn,Cu)(OH)_2$ (Dana)

Aurífero (Sp.). Gold-bearing. (Dwight)

Auriferous. Containing gold.

Auriferous pyrites. Pyrite containing gold. (Standard)

Aurigerous. Gold-bearing; auriferous. (Standard)

Auroral. Of, pertaining to, or designating the second group of Paleozoic strata in the Lower Silurian of the original system of the Pennsylvania Survey (Standard). Now obsolete.

Aurum. Gold. Its chemical symbol is Au.

Ausscharen (Ger.). The junction of lodes. (Davies)

Austrian vermilion. A basic chromate of lead. (Webster)

Auszimmern (Ger.). Timbering. (Davies)

Authigenous. An adjective coined by Kalkowsky to describe those minerals which form in sediments after their deposition, as, for instance, during metamorphism. The name emphasizes in its etymology the local origin of the minerals as contrasted with that of the other components, the latter having been brought from a distance. (Kemp)

Authigenic. Produced where found; said of the ingredients of crystalline rocks, or of crystalline ingredients of rocks. (Standard)

Autochthonous. An adjective derived from two Greek words, meaning indigenous. It is applied to those rocks that have originated *in situ*, such as rock salt, stalagmitic limestones, peat, etc., but it is of rare use. (Kemp)

Autoclastic. Having a clastic or fragmental structure due to crushing or to dynamic metamorphism instead of to sedimentation: said of intraformational conglomerates. (La Forge)

Autogenetic drainage. Drainage due to erosion caused by the waters of the constituent streams. (Standard)

Autogenetic topography. Conformation of land due to the physical action of rain and streams. (Standard)

Autogenic soldering. The process of uniting pieces of metal by merely fusing them together. (Webster)

Automatic mine-doors. Doors on a haulage road that are automatically opened by an approaching trip passing over a lever, and that close automatically after the trip has passed through, thus making the services of a door- or trapper-boy unnecessary.

Automorphic. The contrasted term with xenomorphic or allotriomorphic, and is used to describe those minerals in rocks which have their own crystal boundaries. The later, suggested word, idiomorphic, means the same thing and is somewhat more widely used. (Kemp)

Autunite. Calcium uranite. A hydrous phosphate of uranium and calcium, $Ca(UO_2)_2P_2O_8+8H_2O$. Contains 62.7 per cent UO_3, equivalent to 61.6 per cent U_3O_8 (Dana). The mineral is radioactive.

Autun shale oil. A name applied to a certain kind of illuminating oil, so called through being extracted from the bituminous shale found at Autun in France. (Mitzakis)

Avalanches. 1. Masses of snow, that being detached from great heights in the mountains, acquire enormous bulk by fresh accumulations as they descend; and when they fall into the valleys below, often cause great destruction. (Davies)
2. Falling masses of rock and earth, sometimes called avalanches, are better designated landslides. (Standard)

Avalite. An impure variety of muscovite containing chromium oxide. (Standard)

Avanco (Port.). The main level following the strike. (Halse)

Avasite. A black, massive, hydrated iron silicate: probably only siliceous limonite. (Standard)

Avena (Sp.). Oats. (Dwight)

Aventadero. 1. (Sp. Am.) A slide of loose ground containing alluvial gold. (Lucas)
2. (Colom.) A placer higher than a *sabana*. 3. (Peru) An auriferous deposit or placer. (Halse)

Aventurine. 1. A kind of glass containing gold-colored spangles. 2. A variety of translucent quartz, spangled throughout with scales of mica or other mineral. (Webster)
3. A variety of feldspar containing shining particles. (Standard)

Aventurine feldspar. A name for sunstone, which may be orthoclase, albite, or oligoclase (Chester). Dana confines this term to the oligoclase variety.

Aventurine quartz. *See* Aventurine, 2.

Average clause (Eng.). A clause that, in granting leases of minerals (coal, ironstone, and clay in particular), provides that lessees may, during every year of the term, make up any deficiency in the quantity of coal, etc., stipulated to be worked, so as to balance the dead or minimum rent. (Gresley)

Average igneous rock. According to Clarke, the arithmetic mean of all the good analyses should give a fair chemical average for the outermost ten-mile shell of the earth, which represents the composition of an average igneous rock. Authorities differ somewhat from above manner of securing result. (Daly)

Average produce (Corn.). The quantity of pure or fine copper in one hundred parts of ore. (Raymond)

Average standard (Corn.). The price per ton of the fine copper in the ore, after deducting the charge for smelting. (Whitney)

Average weight (Eng.). The mean weight of a car of coal for a certain period, on which wages are calculated. (Bainbridge)

Avezacite. A name given by a Lacroix to a peculiar cataclastic rock found in veins or dikes in a peridotite at Avezac-Prat, in the French Pyrenees. The rock is dense, black, and brittle, but contains large basaltic hornblendes and yellow sphenes, in a fine-grained mass, which, on microscopic examination is resolved into a cataclastic aggregate of apatite, sphene, titaniferous magnetite, ilmenite, hornblende, augite, and rarely olivine and biotite. It is supposed to have resulted from the crushing of basic pegmatitic veins or dikes. (Kemp)

Aviado (Sp.). One who works a mine with means furnished by another. (Standard)

Aviador (Sp.). A person who habilitates a mine; that is, who furnishes the money for working it by a contract with proprietors. (Raymond)

Avio (Sp.). Operating funds furnished to the proprietors of a mine by another person, the *aviador*. *Contrato de avio*, a contract between two parties for working a mine by which one of the parties, the *aviador*, furnishes the money to the proprietors for working the mine. (C. and M. M. P.)

Avios (Sp.). Tools; implements. (Halse)

Aviso. 1. (Mex.). Announcement on a bulletin board, at the mining agency, of application for claims, etc. 2. (Colom.) Notice of a denouncement given before an *alcade*. (Halse)

Avogadro's law. One of the fundamental chemical laws that equal volumes of all gases and vapors contain the same number of ultimate particles or molecules at the same temperature and pressure. (Liddell)

Avoirdupois. The system of weights used in England and the United States for the ordinary purposes of trade, of which the fundamental unit is the pound of 16 ounces or 7,000 grains (Standard). The avoirdupois pound is equivalent to 14.583 troy ounces, 453.6 grains, and has a fine-gold value of $301.4375 or £61.97.

Avulsion. A sudden change in the course of a stream by which a portion of land is cut off, as where a river cuts across, forming an "Ox bow." (Shamel, p. 307)

Award (Forest of Dean). A grant or lease of certain minerals. *See also* Gale, 1. (Gresley)

Awaruite. A native alloy of nickel and iron. It has the formula $FeNi_2$. (Dana)

Axe stone. A species of jade. It is a silicate of magnesia and alumina. (Duryee)

Axes of elasticity. Those axes in crystals that represent the directions of greatest, mean, and least indices of refraction. (Dana)

Axes of reference. Co-ordinate axes to which crystal faces are referred. (A. F. Rogers)

Axial angle. The angle between the two optic axes of a biaxial crystal. (Luquer, p. 5)

Axial elements. The axial ratio and the angles between the axes of a crystal. (A. F. Rogers)

Axial figure. *See* Interference figures.

Axial plane. 1. A crystallographic plane that includes two of the crystallographic axes. (Dana)
2. As applied to folds, is a plane that intersects the crest or trough in such a manner that the limbs or sides of the fold are more or less symmetrically arranged with reference to it. (Leith)

Axial ratio. The ratio obtained by comparing the length of a crystallographic axis with one of the lateral axes taken as unity. (Dana)

Axinite. A boro-silicate of aluminum and calcium with varying amounts of iron and manganese. Exact composition doubtful. (Dana)

Axiolite. A term coined by Zirkel in his report on Microscopical Petrography, for the U. S. Geol. Survey along the Fortieth Parallel, 1876, to describe those spherulitic aggregates that are grouped around an axis rather than around a point. The application comes in microscopic work rather than in ordinary determination. *Compare* Spherulite. (Kemp)

Axis. 1. A straight line, real or imaginary, passing through a body, on which it revolves or may be supposed to revolve; a line passing through a body or system around which the parts are symmetrically arranged. (Webster)
2. In crystallography, one of the imaginary lines in a crystal which are used as coordinate axes of reference in determining the positions and symbols of the crystal planes. (La Forge)
3. *See* Anticlinal axis, and Synclinal axis. Often used synonomously with anticlinal; thus the "Brady's bend axis" for Brady's bend anticlinal. (Chance)
4. In geology the central or dominating region of a mountain chain, or the line of which follows the crest of a range and thus indicates the position of the most conspicuous part of the uplift. (Century)

Axis of a crystal. *See* Axis, 1 and 2.

Axis of elevation. Line of elevation. (Hitchcock)

Axis of rotation. The imaginary line about which all the parts of a rotating body turn. (Century)

Axis of symmetry. An imaginary line in a crystal, about which it may be rotated a certain number of degrees so as to occupy the same position in space as before. (La Forge)

Axle. A transverse bar or shaft connecting the opposite wheels of a car or carriage. (Webster)

Axletree. An axle made of wood; the center shaft of a horse gin. (Barrowman)

Axman; Axeman. In surface surveying, one who clears the ground and drives the stakes for the rodman. (Standard)

Axotomous. In crystallography, having cleavage perpendicular to an axis: said of minerals. (Standard)

Ayate (Mex.). Coarse fiber-cloth for carrying ore, rock, etc. (Dwight)

Ayr stone. A fine-grained stone used in polishing marble and giving a fine surface to metal work, particularly iron and steel, also as a whetstone. Called also Scotch stone, Water of Ayr. (Standard)

Ayuda (Mex.). A small bonus to tributers who fail to make expenses (Dwight). *Metales de ayuda*, ore containing lead, used to assist in smelting other ore. (Halse)

Ayudante (Mex.). Assistant; *A. de fundición*, a master smelter. (Halse)

Azabache (Mex.). Jet. (Dwight)

Azadón (Sp.). Pick, mattock, hoe. (Vel.)

Azanca (Sp.). Subterranean spring. (Halse)

Azaracón (Sp.). Red lead; *A. nativo*, minium. (Halse)

Azimut (Mex.). Azimuth-bearing. (Dwight)

Azimuth. The azimuth of a body is that arc of the horizon that is included between the meridian circle at the given place and a vertical plane passing through the body. It is measured (in surveying) from due north around to the right (C. and M. M. P.). In astronomy it is measured from the south to the right *i. e.* clockwise.

Azimuth circle. An instrument for measuring azimuth, having for its chief characteristic a graduated horizontal circle. (Standard)

Azimuth compass. A magnetic compass supplied with sights, for measuring the angle that a line on the earth's surface, or the vertical circle through a heavenly body, makes with the magnetic meridian. (Standard)

Azogado (Mex.). Poisoned by mercury. (Dwight)

Azogue (Sp.). 1. Quicksilver. 2. Ore amenable to amalgamation; free milling ore. (Halse)
3. (Mex.). Common name for third-class silver ore, generally carrying 35 to 150 ounces per ton, which will pay for mining and shipping (Dwight). *A. apolvillado*, good ore suitable for amalgamation. *A. común*, common ore suitable for amalgamation. *A. en caldo*, quicksilver. *A. ordinario*, ordinary ore suitable for amalgamation. (Min. Jour.)

Azoguería (Sp.). 1. The amalgamating works. 2. The process of amalgamation. (Raymond)
3. A storehouse for quicksilver. (Dwight)

Azoguero. 1. (Mex.). The amalgamator, or person who superintends the process of amalgamation. 2. (Sp.) A dealer in quicksilver. (Halse)
3. (Mex.). The "mud-chemist" (also, the metallurgical foreman) in patio-annex. (Dwight)

Azogues. (Sp.). Common or inferior ores. (Raymond)

Azoic. Formerly, that part of geologic time represented by the pre-Cambrian stratified rocks; also the rocks formed during that time. Later restricted to the period and system now generally called Archean. Now practically obsolete. (La Forge)

Azorite. A synonym for Zircon.

Azotate. A nitrate. (Standard)

Azote. A name formerly given to nitrogen, because it is unfit for respiration. (Century)

Azoth. Mercury: the name given by the alchemists. (Standard)

Azotine. An explosive consisting of sodium nitrate, charcoal, sulphur and petroleum. (Webster)

Azotize. To nitrogenize. (Webster)

Azúcar (Colom.). A soft white granular rock in which calcite predominates, forming a gangue in which native gold occurs. (Halse)

Azuela (Mex.). Adze. (Dwight)

Azufrado. 1. (Colom.) A yellow ocher found in veins. (Halse)
2. In Peru, the general term *azufrados* is used for sulphide ores. (Dwight)

Azufral (Sp.). *See* Solfatara.

Azufre (Sp.). 1. Sulphur. *A. nativo*, native sluphur. 2. (Colom.). A yellow stone of great hardness frequently found in gold placers. (Halse)

Azufrón (Sp.). Pyritic mineral in a pulverulent condition. *Azufrones* (Mex.) Sulphide ores (Halse). *See also* Azufrado, 2.

Azulaque (Sp.). 1. Bitumen. 2. (Zacualpan, Mex.) Argentite. 3. *A. y cardenillo*, (Guerrero, Mex.) Copper ores of blue and green colors rich in silver. 4. *Azulaques* (Zacatecas, Mex.), ore derived from the country rock, which for some distance from the vein is impregnated with pyrite, argentite, silver, and chloride of silver (Halse). Finely disseminated ore. An impregnation of decomposed sulphides staining the gangue. (Dwight)

Azulinhas (Braz.). Small and cloudy sapphires found with diamonds. (Halse)

Azure spar. Lazulite. (Standard)

Azure stone. 1. A synonym for Lapis lazuli. (Power)
2. Same as Azurite. (Century)

Azurite. Blue copper carbonate, $CuCO_3.Cu(OH)_2$. Contains 46 per cent copper (U. S. Geol. Surv.). Sometimes called Azure stone.

Azurmalachite. A mixture of blue and green copper carbonates. (U. S. Geol. Surv.)

B.

Baaken (So. Afr.). A boundary mark. (Standard)

Babbitt metal. 1. A soft, white, antifriction metal of varying composition, as of 4 parts of copper, 8 of antimony, and 24 or 96 of tin (the alloy with the smaller proportion of tin being called "hardening," that with the greater "lining"). 2. Any of several alloys similarly used. (Webster)

Babel quartz (Eng.). A variety of rock crystal, which from its fanciful resemblance to the successive tiers of the Tower of Babel, have given rise to the name. (Page)

Baboo; Babu (India). A native clerk who writes English. (Webster)

Baby (Eng.). A balance weight near the end of a pit (shaft) rope. (Bainbridge)

Bacharach-American gas indicator. A pocket device for the rapid determination of the percentage of CO_2 in the atmosphere of mines, boiler rooms, blast furnaces, etc.

Bacia (Port.). A basin, as of a river; *B. carbonifera*, a coal basin. (Halse)

Bacile (It.). In ceramics, a basin or deep dish of or resembling Italian enameled and lustered pottery. (Standard)

Bacino (It.). In ceramics, one of a class of dishes of highly colored pottery, built into the walls of medieval Italian buildings. (Standard)

Back. 1. That part of a lode which is nearest the surface in relation to any portion of the workings of the mine; thus the back of the level or stope is that part of the unstoped lode which is above. (Whitney)
2. A joint, usually a strike joint, perpendicular to the direction of working. 3. The upper surface of a beam. (Webster)
4. (Eng.) A plane of cleavage in coal, having frequently a smooth parting and some sooty coal included in it. 5. (Eng.) The inner end of a heading. 6. (Leic.) To throw back into the gob, or waste, the slack, dirt, etc., made in holing. 7. (Leic.) To roll large coal out of waste for loading into trams. (Gresley). Also called Backen.
8. To drive, force, or cause to move or act backward; to cause to retreat, or recede. (Webster). Also called Backen.

Back and underhand stoping milling system. *See* Combined and underhand stoping.

Back balance. 1. A kind of self-acting incline in a mine. A balance car is attached to one end of the rope, and a carriage for the mine car is attached to the other. A loaded car is run on the carriage and is lowered to the foot of the incline raising the balance car. The balance car in its descent raises the carriage when the carriage is loaded only with an empty car. 2. The means of maintaining tension on a rope transmission or haulage system, consisting of the tension carriage, attached weight, and supporting structure.

Backboard (York). Work, performed underground by the deputies, which consists of drawing timbers in abandoned or worked-out places, repairing brattices, doors, and keeping the roadways in order (Gresley). *See also* **Backbye work.**

Backbye work. Work done between the shaft and the working face, in contradistinction to face work, or work done at the face. (C. and M. M. P.) *See also* Back work.

Back casing (Eng.). A temporary shaft lining of bricks laid dry, and supported at intervals upon curbs. When the stonehead has been reached, the permanent masonry lining is built upon it inside of the back casing (Raymond). In the North of England the use of timber cribs and planking serves the same purpose.

Back coal (Scot.). Coal which miners are allowed to carry home. (Barrowman)

Back coming (Scot.). Working away the pillars which are left when mining coal inbye (Gresley). Robbing pillars; back working.

Backen (So. Staff.). *See* Back, 7 and 8.

Back end (Newc.). The part of a judd remaining after the *sump* (*See* Sump, 2.) has been removed. (Raymond)

Back entry. The air course parallel to and below an entry. *See also* Entry. (Steel)

Back fill. In engineering, to fill a depression with materials taken from a cutting. (Century)

Back filling. 1. Rough material forming the back of a masonry wall. 2. The filling in again of a place from which the earth has been removed; the earth so filled in. (Century)

Back-filling system. *See* Overhand stoping; also Square-set stoping.

Back holes. In shaft sinking, raising or drifting, the round of holes which is shot last. (Du Pont)

Back horse (So. Staff.). The horse that draws the loaded skip from the loaders to the place (wagon hole) where the tramway ends. (Min. Jour.)

Backing. The timbers fixed across the top of a level, supported in notches cut in the rock. (Davies)

Backing deals (Eng.). Planks driven vertically behind the timbering in a shaft. (Chance)

Backjoint. 1. A joint plane more or less parallel to the strike of the cleavage, and frequently vertical. (C. and M. M. P.)
2. In masonry, a rabbet or chase left to receive a permanent slab or other filling. (Webster)

Backlash (Eng.) 1. The return or counterblast, as the recoil or backward suction of the air current produced after a mine explosion. (Gresley)
2. The reentry of air into a fan. (Steel)
3. The lost motion in gearing due to poorly fitting parts.

Back leads. A term applied to black sand "leads" on coast lines which are above high-water mark. (Duryee)

Back lye (Scot.). A siding or shunt on an underground tramway. (Gresley)

Back of a lode. The portion of a lode lying between a level driven in a lode and the surface (Davies). *See also* Back, 1.

Back of ore. The ore between two levels which has to be worked from the lower level (C. and M. M. P.). *See also* Back, 1.

Back overman (No. of Eng.). A man whose duty it is to look after the condition of underground workings and the safety of the men. (Gresley)

Back plate. The amalgamated plate inside and at the back of the mortar box of a stamp mill.

Back pressure. The loss, expressed in pounds per square inch, due to failure of getting the steam out of the cylinder after it has done its work. (Ihlseng)

Back-pressure valve. A valve similar to a low-pressure safety valve but capable of being opened independently of the pressure, thereby giving free exhaust. (Nat. Tube Co.)

Backs. The ore above any horizontal opening, such as a tunnel or drift (Duryee). *See* Back, 1.

Backs and cutters. Jointed rock structures, the backs (joints) of which run in lines parallel to the strike of the stratum, the cutters (cross joints) crossing them about at right angles. (Standard)

Backshift (No. of Eng.). A second shift or relay of miners who begin cutting coal after another set has begun to load it, at the same place. (Century)

Back shot. A shot used for widening an entry, placed at some distance from the head of an entry. (Steel)

Back sight. 1. The reading of a leveling staff in its unchanged position when the leveling instrument has been taken to a new position.
2. Any sight or bearing taken in a backward direction. (Webster)
3. An observation made for verification from one station to the one behind it; the converse of foresight. (Standard)
4. The rodman who indicates, by means of a range rod, leveling staff, or plumb line, the exact location of the backsight station. 5. Also the station sighted, and in plane-table triangulation, the line of the plane-table sheet by means of which the table is orientated by sighting back to the station from which the line was drawn as a foresight.

Back skin (Newc.). A leather covering worn by men in wet workings. (Raymond)

Back-slope. In geology, the less sloping side of a ridge. Contrasted with Escarpment, the steeper slope. Called also Structural plain. (Standard)

Back splinting (Scot.). A system of working a seam of coal over the goaf and across the packs of a lower seam taken out in advance by the long-wall method. (Gresley)

Backstay. A wrought-iron forked bar attached to the back of cars when ascending an inclined plane, which throws them off the rails if the rope or coupling breaks (C. and M. M. P.). *See also* Dragbar; Drag, 1.

Back stope. To mine a stope from working below. (Century)

Back stoping. *See* Overhand stoping; Shrinkage stoping.

Back switching. A zigzag arrangement of railway tracks by means of which it is possible for a train to reach a higher or lower level by a succession of easy grades (Bowles) *See also* Switchback.

Back-vent (Scot.). An aircourse alongside the pillar in wide rooms. (Barrowman)

Back work. 1. (Ark.) Loading coal, laying track, and other work of driving an entry and not done at the extreme face. (Steel) *See also* Backbye work.
2. (Scot.) *See* Back-coming, and Back splinting.

Backworking (Scot.). Working a coal bed back or toward a shaft. (Century)

Bacon stone. An old name for a variety of steatite, alluding to its greasy appearance. (Chester)

Bad air. Air vitiated by powder fumes, noxious gases or insufficient ventilation. (Weed)

Baddeleyite. Zirconium dioxide, ZrO_2.

Badlands. A region nearly devoid of vegetation where erosion, instead of carving hills and valleys of the ordinary type, has cut the land into an intricate maze of narrow ravines and sharp crests and pinnacles. Travel across such a region is almost impossible, hence the name. (U. S. Geol. Surv., Bull. 613, p. 182). Specifically, the Badlands of the Dakotas.

Bad place. Within the meaning of a contract between the United Mine Workers and an Employers' Association, a place in which the roof can not be made reasonably safe by the ordinary propping usually done by the miner. (Duncan Coal Co. v. Thompson, 162 Southwestern, p. 1140)

Baff ends (Eng.). Long wooden wedges for adjusting linings in sinking shafts. (C. and M. M. P.)

Baffle. 1. That which defeats or frustrates, hence in the flotation process, the projections or wings that divert or interrupt the flow of pulp in a vessel. (Rickard)
2. (Mid.) To brush out or mix fire damp with air. (Gresley)
3. *See* Baffle plate.

Baffle plate. A metal plate used to direct the flames and gas of a furnace to different parts so that all portions of it will be heated; a deflector. (Century)

Baffler. 1. (No. Staff.) The lever by which the throttle-valve of a winding engine is worked. (Gresley)
2. A partition in a furnace so placed as to aid the convection of heat; a baffle plate. (Century)

Baff week (No. of Eng.). The week next after the pay week, when wages are paid fortnightly. (Gresley)

Bag. 1. A paper container 1 to 2 inches in diameter and 8 to 18 inches long, used for placing an inert material such as sand, clay, etc., into a bore hole for stemming or tamping. Also called a Tamping bag. (Du Pont)
2. (So. Staff.) A quantity of fire damp suddenly given off by the coal seam. (Gresley)
3. A cavity in a mine containing gas or water. (Standard)
4. (or Baggit) (Scot.). To swell or bulge. (Barrowman)

Bagazo (Mex.). Waste from hand-jigging. Mud from drill hole. (Dwight)

Bag coal (Eng.). Coal put into coarse canvas bags and sold in small quantities. (Gresley)

Bag house. A large room or chamber, or series of rooms at metallurgical blast-furnace plants in which 3,000 to 4,500 bags are suspended for filtering furnace gases. Also used for the recovery of oxides, as arsenic, zinc, etc.

Bag of foulness (No. of Eng.). A cavity in a coal seam filled with fire damp under a high pressure, which, when cut into, is given off with much force. *See also* Bag, 2. (Gresley)

Bag of gas (Eng.). A gas-filled cavity found in seams of coal. *See also* Bag, 2. (G. C. Greenwell)

Bag process. A method of recovering fluedust and also sublimed lead whereby furnace gases and fumes are passed through bags suspended in a bag-house. The furnace gases are thus filtered and the particles in suspension collected. (Hofman, p. 131)

Bag room. A dust chamber in which bags are suspended for filtering the furnace gases in the bag process. *See also* Bag house.

Bagshot sands (Eng.). A series of Lower Tertiary beds consisting chiefly of siliceous sand, and occupying extensive tracts round Bagshot in Surrey, and in the New Forest, Hampshire. (Page)

Bahar (Malay). A unit of weight equal to 4 cwt. (Lock)

Baikerinite. A thick tar-like fluid at 15°C., which constitutes 32.61 per cent of baikerite. (Bacon)

Baikerite. A wax-like mineral from the vicinity of Lake Baikal; it is apparently about 60 per cent ozocerite. (Bacon)

Bail. 1. To dip or throw out; as, to bail water. 2. To clear of water by dipping or throwing it out; as to bail a boat. (Standard)
3. The handle of a bucket used for hoisting ore, rock, water, etc., from a mine.

Bailer. 1. A long cylindrical sheet-iron vessel fitted with a valve at its lower extremity, used for raising the oil from the bottom of the well to the surface. *See also* American pump. (Mitzakis)
2. A person who removes water from a mine by dipping it up with a bucket. (Steel)
3. A metal tank, or skip, with a valve in the bottom, used for unwatering a mine.

Bailer shop. A term used in all Russian oil fields, for a shop in which bailers are made and kept in repair for use at oil wells. (Mitzakis)

Bailiff (Eng.). A name formerly used for manager of a mine. (Gresley)

Bailing. 1. One of the most common ways by which the petroleum that has collected at the bottom of a well is brought to the surface. *See* Bailer, 1. (Mitzakis)
2. Unwatering a mine. *See* Bailer, 2 and 3.

Bailing drum. A light winding drum from 10 to 18 feet in circumference, fixed in the derrick, usually driven by belting from a motor, around which the bailer rope is coiled. (Mitzakis)

Bailing tub. A wooden tank about 6 feet in diameter by 6 feet in height placed on trestles over the mouth of an oil well, and into which the bailer is emptied. (Mitzakis)

Bain (Scot.) Old form of Ben, 1, *which see.* (Barrowman)

Bait (No. of Eng.). Food taken by a miner during his shift. (Gresley)

Bait-poke (No. of Eng.). A bag for carrying a miner's lunch. (Gresley)

Bait time (Eng.). Meal time underground. A term in use in Northumberland and Durham; in other districts "snap" or "whiff." (Redmayne)

Baixada (Braz.). Low country, as the valley of a river. (Halse)

Bajada (Sp.). A ladder-way. (Lucas)

Baja de metales (Peru.). Lowering of ores from mine to mill. (Dwight)

Bajo. 1. (Mex.). Foot-wall. *See* Respaldo. 2. (Colom.). Low-lying alluvial mines which have to be unwatered by artificial means; generally deposits in present river bed (Halse)

Bake. To dry, harden, or vitrify by exposure to heat, as in a furnace or kiln; as, to bake pottery or bricks. (Standard)

Bakie (Scot.). A sled, slipe, sleigh or sledge. (Barrowman)

Bakuin. A Russian machine oil, prepared from Baku petroleum; it has high viscosity and great power of resisting cold. (Bacon)

Bal. A Cornish name for a mine; a cluster of mines. (Century)

Bala limestone. In Wales, a limestone belonging to the Cambrian system and equivalent to the Trenton in New York, or at least in part. (Emmons, 1860)

Balance. 1. (Eng.). The counterpoise or weight attached by cable to the drum of a winding engine to balance the weight of the cage and hoisting cable and thus assist the engine in lifting the load out of the shaft.
2. An instrument for weighing. *See* Assay balance. 3. To weigh; to counterbalance or counterpoise. To settle as an account. (Webster)
4. (Nova Scotia). *See* Balance pit.

Balance bob. A heavy lever ballasted at one end, and attached at the other to the pump rod, the weight of which it thus helps to carry. When the shaft is deep, and the pump rods are consequently very heavy, balance bobs are put in at intervals of 200 or 300 feet, thus relieving the strain on the rods themselves and on the engine (Raymond). *See also* Bob.

Balance box. A large box placed on end of a balance bob and filled with old iron, rock, etc., to counterbalance the weight of pump rods. (C. and M. M. P.)

Balance brow. (No. Staff.). A self-acting inclined plane down which the cars of coal are lowered and the empties elevated upon a carriage or platform (Gresley). Also called Balance plane; Back balance.

Balance car. 1. In quarrying, a car loaded with iron or stone and connected by means of a steel cable with a channeling machine operat-

ing on an inclined track. Its purpose is to counteract the force of gravity and thus enable the channeling machine to operate with equal ease up and down hill. (Bowles) 2. A small weighted truck mounted upon a short inclined track, and carrying a sheave around which the rope of an endless haulage system passes as it winds off the drum. (C. and M. M. P.)

Balanced shot. In coal mining, a shot for which the drill hole is parallel to the face of the coal that is to be broken by it. (Steel)

Balance gate. A gate hung in the middle on a horizontal or vertical axis, as a flood gate, to facilitate turning in a current.

Balance pit (Eng.). The pit or shaft in which a balance (counter weight) rises and falls. (Gresley)

Balance plane. An inclined plane up which empty cars are hoisted by the weight of descending loaded cars. Also called Balance brow.

Balance rope (Scot.). A rope hung under the cage in a shaft to counterbalance the winding rope. (Barrowman)

Balanza (Mex.). A balance; small scales. (Halse)

Balanzón (Mex.). Main beam or balance bob of a Cornish pumping engine. (Dwight)

Balas; Balas-ruby. A rose-red variety of spinel. Corruption of Badakhshan, a locality in Afghanistan, where it is found. (Power)

Bald. Without framing. Said of a mine timber which has a flat end. (Sanders, p. 142)

Balde (Chile). A kibble. (Halse)

Balistite. *See* Ballistite.

Balk. 1. (Eng.) A more or less sudden thinning out, for a certain distance, of a bed of coal; a nip or want. Also spelled Baulk (Century). Also failure of coal in a coal stratum. (Tennessee Copper Co. *v.* Gadley, 207 Federal, p. 297) 2. A timber for supporting the roof of a mine, or for carrying any heavy load. (Gresley)

Balk-ground foreman. A foreman whose duties are to inspect and to see that the coal is properly mined where there are balks in the mine (Tennessee Copper Co. *v.* Gadley, 207 Federal, p. 297). *See* Balk, 1.

Balkstone (Eng.). A provincial name given to an impure stratified limestone. (Humble)

Ball. A pasty mass of puddled iron; a loup. (Standard)

Balland (No. of Eng.). Pulverized lead ore after separation from the gangue (Century). Lead concentrates.

Ballast. Broken stone, gravel, sand, etc., used for keeping railroad ties in place. (C. and M. M. P.)

Ballast car. A car used for carrying ballast, which may be unloaded from the side or bottom. (Webster)

Ballast engine. A steam engine used in excavating and for digging and raising stones and gravel for ballast. (Webster)

Ballast hammer. A hammer with a long handle and two faces, used to break stone ballast. (Webster)

Ballasting. 1. The act of furnishing with ballast. 2. Material for ballast (Standard). *See also* Ballast.

Ballast-shovel. A spoon-pointed shovel having a thick body. (Standard)

Ball breaker. A steel or iron ball that is hoisted by a derrick and allowed to fall on blocks of waste stone for the purpose of breaking them. (Bowles)

Ball clay. A plastic white-burning clay used as a bond in chinaware (Ries). Called also Pipe clay.

Ball grinder. A pulverizer or disintegrator formed by balls of metal inclosed in a rotating cylinder. The material to be crushed is broken by the attrition of the rolling balls (Century).

Balling. The aggregation of iron, in the puddling or the bloomery process, into balls or loups. (Raymond)

Balling furnace. 1. A kind of reverberatory furnace used in alkali works. 2. A furnace in which piles or fagots of wrought iron are placed to be heated preparatory to rolling. (Century)

Balling head. An attachment at the end of a carding machine for receiving and balling the wool silver. (Webster)

Balling tool. A tool used in collecting into a mass the iron in a puddling furnace preparatory to taking it to the hammer or squeezer; a rabble. (Century)

Ball ironstone. 1. (So. Staff.) Strata containing large argillaceous nodules of ironstone. (Gresley)
2. Nodular iron ore. (Webster)

Ballistite; Balistite. A smokeless powder consisting essentially of soluble cellulose nitrates and nitroglycerin. It is dark colored and rubbery. (Webster)

Ball joint. A flexible pipe joint made in the shape of a ball or sphere. (Nat. Tube Co.)

Ball mill. A short tube mill (*which see*) of relatively large diameter in which grinding is done by steel balls instead of pebbles. The discharge is usually through a screen.

Ball mine. Same as Ball ironstone, 1. (Century)

Ball-Norton magnetic separator. An apparatus consisting of two revolving drums within each of which is a series of stationary electromagnets extending the working length of the drum, but corresponding only to a portion of the periphery. The ore is fed on the top of the first drum, and as the drum revolves, the magnetic particles adhere to it, while the nonmagnetic fall into a tailings bin below. The magnetic particles, beyond the magnets, are thrown off by centrifugal force against the second drum. This either rotates faster or has a weaker magnetic field than the first drum, so that those particles least strongly attracted by the first drum fall from the second, making a middling product. (Liddell)

Ballon (Fr.). 1. A form of geological upheaval resulting in mountains, and characterized by rounded domes. (Standard)
2. The metal prolong fixed to a zinc condenser.

Ball porphyry. A variety of quartz prophyry in which balls of felsite are developed. (Power)

Ball soda. Crude soda. (Century)

Ball stamp (Lake Sup.). A stamp for crushing rock, operated directly by steam power, the stem of the stamp being at the same time the piston rod of a steam cylinder. (Raymond)

Ballstone. (Eng.). 1. A concretionary mass of crystalline limestone occurring in the form of balls, varying greatly in size, in the Wenlock limestone. Called also Woolpack. (Standard)
2. (No. Staff.) An ancient term for ironstone. (Gresley)

Ball-tiff. *See* Tiff, 2.

Ball vein. A vein in which nodular iron ore occurs; also, the ore itself (Standard). *See also* Ball ironstone, 1.

Balmaiden (Corn.). A girl employed in the mines. (Standard)

Balnstone (No. of Eng.). Stone or rock forming the roof. (Gresley)

Balsa (Mex.). 1. A movable platform suspended from a cable, used in timbering shafts. 2. A pool of stagnant water in a mine. (Dwight)

Baltimorite. A grayish-green, silky, fibrous, splintery serpentine: possibly an altered asbestos. (Standard)

Bamboo. In ceramics, cane-colored porcelain biscuit (unglazed porcelain) used in making domestic utensils. (Standard)

Bamboo ware. In ceramics, a yellow variety of Wedgwood ware named from its color. (Standard)

Banakite. A general name given by Iddings to a group of igneous rocks in the eastern portion of the Yellowstone Park, and chiefly in dikes. They are porphyritic and richly feldspathic. The phenocrysts are labradorite and the groundmass consists of alkali-feldspars. A little biotite and subordinate augite may be present. The group should be considered in connection with absarokite and shoshonite. (Kemp)

Banatite. A name coined by B. v. Cotta in 1865 to describe the dioritic rocks that are connected with a series of ore deposits in the Austrian province of the Banat. Accurate microscopical study has shown them to be of such varying mineralogy that the name has now slight definite significance. The rocks are largely quartz-diorites. (Kemp)

Banco (Sp.). 1. A carpenter's bench. 2. A solid bed of mineral having two faces exposed. 3. *B. de piedra*, any one bed or stratum of stone in a quarry. 4. *B. de tierra*, a ground sill, a mud sill. 5. (Mex.) Hard rock which narrows a vein, or makes it change its course. A horse. (Halse)
6. (Mex.). The crucible of a blast-furnace. 7. *B. de herrar*, a horse shoeing shop. (Dwight)

Banco de avios (Sp.). A bank which advances funds for the working of mines. (Halse)

Band. 1. Slate or other rock interstratified with coal. Commonly called Middle band in Arkansas; also Dirt band, Sulphur band, or other band, as the case may be. (Steel)
2. (Corn.) A bed or seam of coal.
3. (So. Staff.) A winding rope or chain. (Gresley)

Banda (Mex.). 1. Bolt. (Dwight)
2. Bank of a river. (Halse)

Band brake. A hand or power-actuated brake of a hoisting engine, consisting of a broad steel band lined with blocks of wood or other material, and which operates against the surface of the winding drum.

Bandeada (Mex.). Banded structure of veins. (Dwight)

Banded structure. A term applied to veins having distinct layers or bands. This may be due to successive periods of deposition, or replacement of some earlier rock. (Farrell)

Banded vein. A vein made up of layers of different minerals parallel with the walls (Power). Also called Ribbon vein.

Bandera (Mex.). A flag used in surveying to mark points. (Dwight)

Banderilla (Sp.). A paper cone kept in position by a piece of clay, used to mark the position of drill holes. (Halse)

Bandful (So. Staff.). A cage or, strictly speaking, a rope load; *e. g.*, a bandful of men (Gresley). *Compare* Bant.

Bandsman (Eng.). 1. A miner who operates the hoisting rope or band (Webster). A hoistman.
2. A loader or filler of coal, etc., underground. (Gresley)

Bandstone (White Cliff, N. S. W.). Flat bands of a usually harder nature than the adjoining strata, containing more or less opal, but found either just above or below the workable seams of opal. (Power)

Band wheel. The belt wheel on the axis of the drum which drives the walking beam of a well drill. (Mitzakis)

Bangerts. (Eng.). A coarse stopping for holding earth in place. (Hunt)

Banging-pieces (Eng.). *See* Catches, 1.

Banjo (Scot.). An iron frame for carrying a false clack, or valve. (Barrowman)

Bank. 1. (Derb.) The face of the coal at which miners are working.
2. An ore deposit or coal bed worked by surface excavations or drifts above water-level. (Raymond)
3. In English districts the area immediately surrounding the mouth of a shaft; the landing at the top. (Chance)
4. (Cumb.) A large heap or stack of mineral on the surface of the ground. 5. To manipulate coal, etc., on the bank. (Gresley)

Bank boss. Inside foreman of a mine; a mine boss; a mine captain. (Roy)

Bank claim. A mining claim on the bank of a stream. (Skinner)

Bank-engine (Eng.). An engine at the mouth of a mine shaft. (Standard)

Banker-off (Aust.). The man who attends to taking skips off the cage. (Power)

Banket (Trans.). 1. A conglomerate containing sufficient gold, or any other valuable metal, to be exploited as an ore deposit.
2. (Eng.) A stone-masons' or bricklayers' bench, on which to trim stone or brick. (Standard)

Bank head. The nearly level upper end of an inclined plane, next to the engine or drum. (C. and M. M. P.)

Bank-head machinery (Eng.). The hoisting, dumping and screening equipment at a coal-mining shaft. (Gresley)

Bank hook (Mid.). An iron hook with which the banksman pulls the full cars off the cage. (Gresley)

Banking. 1. (Mid.) Sorting and loading coal at the bank. 2. (Cumb.) Heaping up minerals on the surface for future sale. (Gresley)

Bank-level (York.). The level heading from which the bank is worked (Century). *See also* Bank, 1.

Bank of ovens. A row of ovens for converting coal into coke. (Power)

Bank-out (No. of Eng.). To store coal at the surface when short of wagons, or cars. (Gresley)

Bank plates (Eng.). Cast-iron sheets with which a landing is floored for the more expeditious manipulation of cars (Gresley). A turn-sheet.

Bank right (Aust.). The right to divert water to a bank claim. (Davies)

Banksman. 1. (Eng.). The man in attendance at the mouth of a shaft who superintends the work of sorting and loading the coal (Gresley). Sometimes called Lander.
2. (Aust.). *See* Banker-off.

Bankswoman (Eng.). A woman employed at the mine, to pick rock from, and clean the coal for the market. (Gresley)

Bank to Bank. A shift. The period included between the time a miner arrives at the working face and the time he leaves it.

Bank-work (York.). A system of working coal in South Yorkshire. (Gresley)

Bannock. 1. (So. Staff.) To hole on the top of a seam. 2. (Shrop.). Brownish-gray clay suitable for making into fire brick. (Gresley)

Baño (Mex.). Excess of mercury added to the *torta* to collect amalgam. (Dwight)

Baños (Mex.). Water collected in old mine workings. (Halse)

Banque (Sp.). Underhand stoping. (Halse)

Banquear (Colom.). To level ground; to grade for building purposes, or for depositing ore. (Halse)

Banqueo (Colom.). Ground leveled for building purposes, or for depositing ore. (Halse)

Banquería (Bol.). In alluvial mining, a thick bed of blocks of granite, schists, and quartz. (Halse)

Banquillos (Sp.). Stools on which the *marquetas* are placed. (Min. Jour.)

Bant (Derb.). A certain number of men, usually three or four, who, prior to the introduction of cages, used to ride up and down a shaft sitting in short loose pieces of chain attached to a hemp rope, with their knees pointing inward toward the center of the shaft. There were usually two bants, the lower or bottom bant which was composed of men, and the upper or foaley bant which was made up of lads a few feet above the heads of the men (Gresley). *Compare* Bont, 1; *also* Tacklers.

Bar. 1. A drilling or tamping rod.
2. a vein or dike crossing a lode. (Hanks)
3. A bank of sand, gravel, or other material, especially at the mouth of a river or harbor. 4. A placer deposit, generally submerged, in the slack portion of a stream (Webster). Accumulations of gravel along the banks of a stream, and, which, when worked by the miners for gold, are called Bar diggings (Hanks)
5. A length of timber placed horizontally for supporting the roof. (Gresley). Synonym for Cap-piece in Australia. 6. *See* Sinker bar.

Baraboo. A Monadnock which has been buried by a series of strata and subsequently reexposed by the partial erosion of these younger strata. (Lahee, p. 322)

Barba (Mex.). Fire-bridge. (Dwight)

Barbados earth. A deposit consisting of fossil radiolarians. *See* Tripoli. (Chamberlin, vol. 1, p. 630)

Barbados tar. The dark green or black petroleum of Barbados, which was formerly widely used in medicine. (Bacon)

Barbotine. A thin clay paste used in low relief ornamentation of pottery. (Standard)

Bar diggings (Pac.). Gold-washing claims located on the bars (shallows) of a stream, and worked when the water is low, or otherwise, with the aid of cofferdams (Raymond). *See also* Bar, 4, and Diggings.

Bardiglio marble. An Italian stone obtained on Montalto, on the southern borders of Tuscany. (Merrill)

Bar drill. A drill similar to the tripod drill, but mounted on a bar supported by four legs. (Bowles)

Bare (Eng.). To strip or cut by the side of a fault, boundary, etc. (Gresley). To make bare.

Barequear (Colom.). In placer mining, to extract as much of the pay gravel as possible, without method, leaving the overburden untouched. (Halse)

Barequeo (Colom.). Extracting the rich ore by crude means. (Halse)

Barequero (Colom.). A placer miner who uses crude methods of alluvial washing (Halse). A spoiler. (Lucas)

Barfe Saturday (No. of Eng.). The Saturday upon which wages are not paid. (Gresley)

Barff's process. A method of protecting iron from rusting by oxidizing it with superheated steam. (Webster)

Bargain. Portion of mine worked by a gang on contract. (C. and M. M. P.)

Bargain-men (Newc.). Men who work by the bargain or contract. (Min. Jour.)

Bargain-work (No. of Eng.). Underground work done by contract, *e. g.* driving headings, road laying, etc. (Gresley)

Barges (Scot.). Sheets of iron, zinc, or wood, used in wet shafts or workings for diverting the water to one side. (Barrowman)

Barilla. An impure sodium carbonate and sulphate obtained by burning various species of land or marine plants; soda-ash. Used in making glass, soap, etc. (Standard)

Baring. 1. A making bare; an uncovering (Webster). *See* Stripping, 2. 2. The surface soil and useless strata overlying a seam of coal, clay, iron-stone, etc., which has to be removed preparatory to working the mineral. (Gresley) 3. The small coal made in undercutting a coal seam. (Webster)

Barite. Sulphate of barium, $BaSO_4$; also called Heavy-spar, from its high specific gravity. When finely ground it is used as an ingredient in certain paints, especially in place of white lead. Also called Barytes.

Bario (Mex.). Barium. (Dwight)

Baritina (Sp.). Heavy spar; barite (Lucas)

Barium. A chemical element belonging to the group of metals whose oxides are the alkaline earths. It is yellowish white, somewhat malleable, fusible at high temperature, burning easily when heated in air. Sp. gr. 3.6; atomic weight, 137.37; symbol, Ba. (Century). The commercial minerals are barite and witherite.

Barium sulphate. Barite, $BaSO_4$.

Barkevikite. A variety of amphibole close to arfvedsonite in composition. (Dana)

Barley; Barley coal. A steam size of anthracite known also as buckwheat No. 3, sized on a round punched plate. It passes through $\frac{1}{4}$-inch holes. At some mines it has to pass over $\frac{3}{32}$-inch holes and at others over $\frac{1}{16}$-inch holes. The American Society of Mechanical Engineers has recommended that with a screen with circular holes, barley shall pass through $\frac{3}{16}$-inch holes and pass over $\frac{3}{32}$-inch holes.

Barmaster (Derb.). A mining official who collects the dues or royalties, presides over the barmote, etc. (From Germ. *Bergmeister*). (Raymond)

Bar mining. The mining of river bars, usually between low and high waters, although the stream is sometimes deflected and the bar worked below water level (C. and M. M. P.). *See also* Bar diggings.

Barmote (Derb.). A hall or court in which trials relative to lead mines are held. (Min. Jour.)

Barney. A small car, or truck, attached to a rope and used to push cars up a slope or inclined plane (Raymond). Also called Bullfrog, Donkey, Ground hog, Larry, Ram, Mule, and Truck.

Barney-pit. A pit at the bottom of a slope or plane, into which the barney is lowered to allow the mine car to run over it to the foot of the plane. (Chance)

Barnhardtite. A massive orange-yellow copper and iron sulphide. (Standard)

Bar of ground (Eng.). An intersecting vein of different mineral substances (Bainbridge). A horse.

Barolite. Wadsworth's name for rocks composed of barite or celestite. (Kemp)

Barometer. An instrument for determining the weight or pressure of the atmosphere, and hence for judging of probable changes of weather, or for ascertaining the height of any ascent, etc. (Webster)

Barometer holiday (Derb.). Any day on which no work is carried on underground, owing to the very low state of the barometer (for instance, when it drops below say 29 inches), as much fire damp may be expected to be given off in the mine. (Gresley)

Barómetro (Mex.). Barometer. (Dwight)

Barquín (Sp.). A large bellows used in iron works. (Halse)

Barquina (Sp. Am.). A large furnace. (Halse)

Barra (Mex.). 1. Bar or ingot. 2. A share in a mine. (The ancient Spanish laws considered a mine as divided into 24 parts, each of which was called a *barra*.) *B. viudas* or *aviadas* are non-assessable shares,

which participate in the profits, but not in the expenses of mining. **3.** *B. azuela,* a bar with a chisel bit. **4.** *B. de plata,* silver in bars. **5.** *B. pica,* or *B. de punta,* a bar with a diamond-shaped point. **6.** *B. de uña,* a claw bar for drawing spikes. (Dwight)

Barracks shale. One of the principal oil-shale seams of Scotland. (Bacon)

Barradura (Sp. Am.). Raking into the sluice; scraping. (Lucas)

Barranca (Sp.). A ravine; a washout made by a heavy fall of rain. (Hanks)

Barrandite. A bluish, reddish, greenish, or yellowish-gray hydrous ferric aluminum phosphate, $(Al\ Fe)PO_4+2H_2O$, found in spheroidal concentration. (Standard)

Barrel. **1.** The water-cylinder of a pump. **2.** A piece of small pipe inserted in the end of a cartridge to carry the squib to the powder. **3.** A vessel used in amalgamation. (Raymond)
4. The body of a windlass or a capstan about which the cable winds. (Webster)

Barrel amalgamation. *See* Barrel process.

Barrel chlorination. *See* Barrel process.

Barrel copper. Native copper occurring in small masses, separated easily from the matrix and shipped in barrels to the smelter (Webster). *See also* Barrel work; Barrilla, 1 and 2.

Barrel process. A process of extracting gold or silver by treating the ore in a revolving barrel, or drum, with mercury, chlorine, cyanide solution or other reagent. (Webster)

Barrel quartz. A term applied to certain corrugated veinlets of gold-bearing quartz found in Nova Scotia. (Ore Dep., p. 399)

Barrel-work (Lake Sup.). Native copper occurring in pieces of a size to be sorted out by hand in sufficient purity for smelting without mechanical concentration (Raymond). Also called Barrel copper.

Barren. Not containing mineral of value (Duryee). Not productive.

Barrena (Mex.). A hand drill for blasting. *B. viva,* a sharp drill; *B. muerta,* a dull drill. (Dwight)

Barrenar (Mex.). To drill; to fire a round of holes. (Dwight)

Barrenarse (Mex.). To connect with each other (as two mines or workings). (Dwight)

Barren contact. A contact vein, or a place in the contact vein, which has no mineral. (Crofutt)

Barrenero (Sp.). **1.** A driller. **2.** A boy who attends the boring tools. (Halse)

Barren ground. Strata containing seams of coal that are not of a workable thickness. In metal mining, ground that does not contain ore.

Barren measures. Coal measures without workable seams. (Standard)

Barreno (Mex.). **1.** A drill hole. **2.** A communication between two mine workings. **3.** *B. en agua,* a downward hole. **4.** *B. en seco,* an upward hole. (Dwight)
5. *B. á techo,* a drill hole in the roof. **6.** *B. tenido,* a drill hole in the floor. **7.** *B. de viento,* a jumper or churn drill. (Halse)

Barren solution. A working cyanide solution that contains little or no precious metal. The term refers to solution after precipitation of gold or silver, as distinct from pregnant solution.

Barrer (Sp.). To sweep. *B. por peña* (Colom.). To rake the gold-bearing gravel from bed rock with hoes. *B. un hoyo,* a similar operation applied to more limited areas. *B. el canalón,* an analogous operation in a ground sluice. *B. por planes,* to work in the upper part of the gold-bearing gravel, when it is not possible to clean up the bed rock. (Halse)

Barreta. **1.** (Mex.). A crowbar. **2.** *B. perdida* (Peru). Dead work in unprofitable prospecting. (Dwight)

Barretero. **1.** (Sp.). A borer; a driller. **2.** (Peru). A miner who works with pick, crowbar, and wedges. (Halse)
3. (Mex.). A first-class miner, able to locate, direct, drill, and blast holes. (Dwight)

Barricade. An artificial mound of earth, usually as high as the eaves of a magazine roof, erected to deflect the force of an explosion upward and to protect the inclosed building from flying objects. (Du Pont)

Barrier. 1. A solid block or rib of coal, left unworked between two collieries or mines for security against accidents (Gresley). *See also* Barrier pillar.
2. A low ridge built by wave action near shore. (Chamberlin)

Barrier pillar. A large pillar of coal left at intervals to localize the damage resulting from a crush or squeeze, inrush of water, or a mine explosion.

Barrier system (No. of Eng.). An approved method of working a colliery by pillar and stall, where solid ribs or barriers of coal are left in between working places. (Gresley)

Barril (Sp.). 1. A cask or barrel. 2. *B. de amalgamación*, amalgamation barrel. (Halse)

Barrilla (Bol.). 1. Native copper disseminated in copper ore. 2. Copper-ore concentrate. 3. Tin-ore concentrate containing 60 to 70 per cent metallic tin. 4. (Colom.) In gold mining, wooden divisions in blanket strakes, copper plates, etc. (Halse)

Barring. 1. (Eng.). The timbers in the workings for keeping up the roof. 2. (Scot.). The timber walling or casing of shafts. 3. (York). Using an iron bar to remove loose rocks after blasting. (Gresley)

Barring-down. 1. Removing loose rocks in the roof of a mine by means of a bar. 2. Loosening ore in a bin by means of a bar, so it will flow through the chute.

Barring scrap. Prying adhering scrap metal from runners, ladles, or skimmers. (Willcox)

Barrio (Mex.). A settlement. (Luças)

Barro (Sp.). 1. Clay, loam, mud, earth. 2. *B. de olleros*, potters' clay. 3. Argillaceous marl. 4. (Colom.) Overburden of auriferous alluvial deposits. 5. (Braz.) A layer of fine sand mixed with clay. (Halse)

Barrow. 1. A vehicle in which ore, coal, etc., is wheeled. 2. (Corn.) A heap of attle or rubbish; a dump. (Raymond) 3. A wicker basket in which salt is put to drain. 4. (Eng.) A mountain or hill. (Webster)

Barrow man (Eng.). One who conveys coal underground in a wheelbarrow from the working places to the haulage ways (Gresley). Also called Putter.

Barrow tram. A shaft or handle of a wheelbarrow. (Webster)

Bars (Eng.). Strong timbers placed horizontally for supporting boards by which the faces of the excavation for a tunnel are supported. The "crown-bars" support the upper part of the excavation; the "side bars" the lateral portions. (Simms)

Barrow-way (Newc.). A level through which coal or ore is wheeled. (Raymond)

Bar screen. A device for separating different sizes of coal. It consists of a number of parallel inclined bars at regular distances apart along which the coal slides by gravity. *See also* Grizzly. (Steel)

Bar-timbering. A system of supporting a tunnel roof by long top bars while the entire lower tunnel-core is taken out, leaving an open space for the masons to run up the arching. Under certain conditions the bars are withdrawn after the masonry is completed, otherwise they are bricked in and not drawn. (Ihlseng)

Bartlett table. A three-shelf table driven by an eccentric that gives it a vanning motion. Ore and water are fed on the upper shelf giving two products, heads and tailings. The latter are retreated on the second shelf, and the tailings go to the third or lower shelf for retreatment.

Bartolina (Mex.). A watchman's house at the mine-entrance. (Dwight)

Barybiotite. A variety of biotite containing barium oxide. (Standard)

Barysphere. The central or deep interior portions of the earth, presumably composed of heavy metals or minerals. It is contrasted with Lithosphere, the outer stony shell (Kemp). Also called Pyrosphere.

Baryta. Barium oxide.

Baryta green. A pigment, essentially barium manganate. (Webster)

Baryta white. A pigment made of barite, $BaSO_4$.

Barytes. *See* Barite.

Baryto. A combining form denoting the presence of barium, as in *baryto*calcite, and *baryto*celestite. (Standard)

Barytocalcite. A carbonate of barium and calcium, $BaCO_3.CaCO_3$. (Dana)

Basal cleavage. Same as pinacoidal; cleavage parallel to the basal pinacoid, *i. e.*, perpendicular to the direction of elongation. (Butler)

Basal conglomerate. A conglomerate or coarse sandstone forming the lowest member of a series of related strata which lie unconformably on older rocks. It records the progressive encroachment of the seabeach on the former dry land. (Standard)

Basal plane. A plane parallel to the lateral or horizontal axes of a crystal. (Webster)

Basalt. A word of ancient but uncertain etymology. It is employed as a rock name in its restricted sense for porphyritic and felsitic rocks consisting of augite, olivine and plagioclase with varying amounts of a glassy base which may entirely disappear. In a broader sense the basalt or basaltic group is used to include all the dark, basic, volcanic rocks, such as the true basalts; the nepheline-, leucite-, and melilite-basalts; the augitites and limburgites; the diabases, and melaphyres. (Kemp)

Basalt glass. A black glassy form of basalt. (Webster)

Basaltic. Pertaining to, formed of, or containing basalt; as basaltic lava. (Webster)

Basaltic hornblende. A variety of hornblende found in volcanic rocks. (A. F. Rogers)

Basaltiform. In the form of basalt; columnar. (Webster)

Basaltine. 1. Same as Basaltic. 2. Same as Augite. (Standard)

Basalting. 1. A pavement made of blast furnace slag. 2. The process or operation of covering, as a road, with slag. (Standard)

Basalto (Sp.). Basalt. (Min. Jour.)

Basalt ware. In ceramics, a variety of wedgwood ware with a black body. (Standard)

Basanite. A very old term, first used as a synonym for Basalt; also formerly applied to the black, finely crystalline quartzite, used by old-time workers in the precious metals as a touchstone or test-stone by which to distinguish gold from brass by the streak. This variety was often called Lydian stone or Lydite. Basanite is now universally empolyed for those volcanic rocks that possess a porphyritic of felsitic texture and that contain plagioclase, augite, olivine and nepheline or leucite, one or both, each variety being distinguished by the prefix of one or the other, or of both of the last named minerals. (Kemp)

Basanitoid. A term suggested by Bücking for basaltic rocks, without definite nepheline, but with a glassy base. (Kemp)

Báscula (Mex.). A scale for weighing ore charges. (Dwight)

Base. 1. A compound capable of reacting with acids to form salts. 2. The basal plane of a crystal. 3. The ground mass of a fused magma, especially if glassy or not visibly crystalline. *See also* Basis. 4. A line in a survey which, being accurately determined, in length and position serves as the origin for computing the distances and relative positions of remote points and objects by triangulation. 5. The point or line from which a start is made in any action or operation; as, a price used as a unit from which to calculate other prices is often called Base price. 6. Of little comparative value, as metals inferior to silver and gold, which are precious metals. Alloyed with an inferior metal. (Webster)
7. The artificial foundation of a pavement. (Bacon)

Base bullion. The commercial name for argentiferous lead, as distinguished from silver or gold bullion. *Compare* Bullion, 1. (Hofman, p. 347)

Base course. The first or lowest course of a wall, as of a foundation. Also called Foundation course. (Webster)

Base goods. A term generally used to denote a material made by treating phosphate rock and some nitrogenous substance with sulphuric acid. Hair, leather, scrap fur, wool waste, feathers, shoddy, etc., are the nitrogenous materials most often used. Base is made with the same machinery that is used for making acid phosphate, and methods of operation are about the same. (Amer. Fert. Hand Book, 1917, p. 41)

Base level. 1. The level below which a land surface can not be reduced by running water. (Webster)
2. To reduce by erosion to or toward a base level. (Standard)

Base line. A line taken as the foundation of operations in trigonometrical and geological surveys (Emmons). *See also* Base, 4.

Basement complex. A series of rocks of great obscurity and complexity beneath the dominantly sedimentary rocks. They are at the bottom of the known series, but since they are not the true base or foundation, they are properly termed the Archean complex (Chamberlin). The rocks of the Archean system.

Base metal. Any metal as iron, lead, etc., which is altered by exposure to the air, etc., in contrast with the noble or precious metals. (Webster)

Baseness. 1. Liability to rust. 2. Inferiority due to alloy. (Standard)

Bash (So. Wales). To fill with rubbish the spaces from which the coal has been mined. (Gresley)

Basic. 1. In chemistry, performing the office of a base in a salt; having the base in excess. 2. Having more than one equivalent of the base for each equivalent of acid. (Century)

2. In geology, a general descriptive term for those igneous rocks that are comparatively low in silica. About 55 or 50 per cent is the superior limit. *Compare* Acidic. (Kemp)

3. In furnace practice, a slag in which the earthy bases are in excess of the amount required to form a neutral slag with the silica present. (Raymond)

Basic lining. A lining for furnaces, converters, etc., formed of non-siliceous material, usually limestone, dolomite, lime, magnesia, or iron oxide. (Raymond)

Basic-lining process. An improvement of the Bessemer process, in which, by the use of a basic lining in the converter and by the addition of basic materials during the blow, it is possible to eliminate phosphorus from the pig iron, and keep it out of the steel. (Raymond)

Basic price. As applied to the price of metals, it is that figure at which the price is a minimum. *See* Normal price. (H. C. Hoover. p. 36)

Basic process. *See* Basic-lining process.

Basic rock. A term rather loosely used in lithology generally to mean one of the following: (*a*) An igneous rock containing less than 55 per cent of silica, free or combined. (*b*) An igneous rock in which minerals comparatively low in silica and rich in the metallic bases, such as the amphiboles, the pyroxenes, biotite, and olivine, are dominant. (*c*) Very loosely, an igneous rock composed dominantly of dark-colored minerals. In all three senses contrasted with acid.

The term is misleading and undesirable and is going out of use. As used in the first sense above it is being replaced by *subsilicic* and as used in the second sense it should be replaced by *mafic* or by some term denoting the dominant mineral or minerals. (La Forge) *See* Basic, 2.

Basic salt. A salt in which the acid part of the compound is not sufficient to satisfy all the bonds of the base. (Dana)

Basic slag. The slag produced in steel making in the Thomas furnace, in which a basic calcareous or magnesian lining is used in the converter, and lime, either alone or with oxide of iron, is added to the charge of metal. Phosphorus is retained in the slag and carried off. (Standard)

Basic steel. Steel made by the basic process. (Standard)

Basin. 1. A large or small depression in the surface of the land, the lowest part of which may be occupied by a lake or pond. 2. An area or tract having certain common features throughout, particularly a tract where the strata dip from all sides toward a center. (Webster)

3. A natural depression of strata containing a coal bed or other stratified deposit. 4. The deposit itself. (Raymond)

Basining. In geology, a settlement of the ground in the form of basins, in many cases, at least, due to the solution and transportation of underground deposits of salt and gypsum. Such basining produces numerous depressions, from those of a few square yards to those 50 square miles in area, in the high-plains region east of the Rocky Mountains. (Standard)

Basis; Base. A term employed to describe that part of a fused rock magma that in cooling fails to crystallize as recognizable minerals, but chills as a glass, or related amorphous aggregate. It differs thus from groundmass, which is the relatively

fine portion of a porphyritic rock as distinguished from the phenocrysts. (Kemp)

Basker (Eng.). Old cloth use to cover wet holes to prevent splashing while drilling. (Bainbridge)

Basket (So. Staff.). **1.** A shallow pan into which small coal is raked for loading into cars. **2.** (Leic.) A measure of weight (2 cwt.), occasionally used in East Lancashire. (Gresley)
3. A group of several wooden stakes placed in the form of a small circle to mark and protect a point used in surveying.

Basonomelan. A variety of hematite containing titanium oxide. (Standard)

Basque. A lining for crucibles or furnaces; generally a mixture of clay, etc., with charcoal dust. (Raymond)

Bass; Batt. Same as Bind. *See also* Bat, 3.

Basset. (Derb.) **1.** An outcrop; the edge of a stratum. (Raymond)
2. The shallow or rise side of a working. (Gresley)
3. To incline upward so as to appear at the surface; to crop out. (Webster)

Basset edge (Eng.). The actual outcrop of a seam or bed, where it appears at the surface. (Gresley)

Basseting. **1.** Outcropping. **2.** The cropping out or appearance of rock on the surface of a stratum, or series of strata. (Century)

Bastard. **1.** Of unusual make or proportion; of abnormal shape. (Webster)
2. A hard massive bowlder or rock.

Bastard granite. A quarry term for gneissic granites. (Ries)

Bastard quartz. A miner's term for a white, glassy quartz without other mineralization.

Bastard whin (Eng.). Very hard rock, but not so flinty as to be called whin. (G. C. Greenwell)

Bastimento (Mex.). Miner's luncheon. (Dwight)

Bastite. Schiller spar. An altered enstatite or bronzite having approximately the composition of serpentine. (Dana)

Bastnäsite. A greasy, wax-yellow, fluocarbonate of cerium metals, crystallizing in the monoclinic system. (Dana)

Bastonite. A greenish-brown mica that is closely related to phlogopite. (Standard)

Basura de plomo (Mex.). Lead dross. (Dwight)

Bat. **1.** A plate of gelatin used in printing on pottery or porcelain over the glaze. (Webster)
2. (Leic., So. Staff.) *See* Baffle, 2. Batting out gas was formerly a regular though unsafe thing to do. (Gresley, 1883)
3. (Eng.) A compact black bituminous shale which splits into fine laminae. Is often interstratified in layers with coal. Also spelled Batt, or Bass. (Redmayne)

Batán de piedra (Peru). A stone plate on which ore samples are ground. (Pfordte)

Batch. **1.** A quantity of material destined for one operation. **2.** A quantity of material produced at one operation. **3.** The mixture of raw materials which by fusion is converted into glass. (Webster)
4. (Corn.) The quantity of ore sent to the surface by a pair of men (Raymond). Also called Batch of ore.

Bate. **1.** (So. Staff.) To excavate or lower the floor of a mine (Gresley). *Compare* Brush, 3.

Batea (Mex.). A wide and shallow vessel, usually of wood, used for panning ore. (Dwight)

Bate barrel (Leic.). After drawing a number of barrels of water out of a sump, the first barrel for which there is not sufficient water to fill it. (Gresley)

Bateque (Lower Cal.). Deposits formed by spring water, as in a ravine or at the foot of a hill.

Batería (Mex.). Battery. (Dwight)

Batework (Newc.). Short work. (Min. Jour.)

Bath. **1.** A medium as sand, oil, water, or air for regulating the temperature of anything placed in or upon it; also the vessel containing such a medium. (Webster)
2. A mass of molten material in a furnace, or of solution in a tank. (Raymond)

Bath brick (Eng.). A fine calcareous and siliceous material used for polishing and cleansing metal objects: originally found near Bath, and usually pressed into brick. (Standard)

Bath metal. Any one of several varieties of brass. (Webster)

Batholite. *See* Batholith.

Batholith. A name suggested by Suess for the huge irregular masses of plutonic rocks that have crystallized in depth and that have only been exposed by erosion. The word is also spelled batholite, bathylite, and batholith. The last named is now generally preferred. (Kemp)

Batholithic. Pertaining to, originating in, or derived from a batholith. (Standard)

Bath oölite. A subgroup of the Low Oölite (Jurassic) of England (Standard). *See also* Bath stone.

Bath stone. A creamy limestone from the Bath oölite, soft and easily worked. It was used for building in England as early as the 12th century. (Standard)

Bathvillite. An amorphous, fawn-brown, opaque, very friable oxygenated hydrocarbon from Torbane Hill, Scotland; it is insoluble in benzol and is related to Torbane Hill mineral. *See also* Torbanite. (Bacon)

Bathylite. *See* Batholith.

Bathymetric. Relating to measurement of depths; usually applied to the ocean. (Sloan)

Batiboléo (Mex.). A company of miners working a stope of high-grade ore. (Dwight)

Batice. An inclination or bevel given to the upper timbers of a shaft; as the shaft has a downward and outward batice of 1 inch to the foot (Standard). *See also* Batter, 1.

Bating (Eng.). Lowering a drift or road (Bainbridge). *See also* Bate.

Batir (Colom.). 1. To break up and carry away auriferous gravels by water. 2. *B. el monte*, to explore the mountains. (Halse)

Bat-printing. The act or process of decorating glazed porcelain by means of a gelatin pad. The lines of the pattern are transferred in linseed oil from an incised plate to the pad, and thence to the porcelain, and this oil impression is then dusted with metallic pigment, which is fixed by firing. (Standard)

Batt (Eng.). Shale; hardened clay, but not fire clay. Same as Bend and Bind (Chance). *See also* Bat, 3.

Battage (Fr.) The operation of pulverizing or incorporating the ingredients of gunpowder by the old method of stamping with pestles. (Century)

Batten. A strip of wood used for nailing across two other pieces to hold them together or for covering a crack. (Webster)

Batter. 1. The inclination of a face of masonry or of an inclined portion of a frame or metal structure. C. and M. M. P.) Also called Battice.
2. A paste of clay or loam. 3. A mallet for flattening wet clay on the batting block. (Webster)

Battered set. A set of mine timbers in which the posts are inclined. (Sanders, p. 164.)

Battery. 1. A set of stamps in a stamp mill. *See also* Machine, 4. 2. A bulkhead of timber. 3. The plank closing the bottom of a coal chute. (Raymond)
4. A platform on which the miners stand in thin steep-pitching beds of coal. (Chance)
5. *See* Blasting machine. 6. *See* Storage battery.

Battery-amalgamation. Amalgamation by means of mercury placed in the mortar of a stamp battery. (Raymond)

Battery assay. *See* Pulp assay.

Battery of holes. A number of charges, in drill holes, fired simultaneously with an electric current (Bowles). Also called Multiple shot.

Battery of ovens. *See* Bank of ovens.

Battery solution. A cyanide, or plain alkaline solution added to the ore when being crushed in a stamp mill. (Fulton, p. 34)

Batting block. In ceramics, a plaster slab on which plastic clay is beaten before going to the whirling table. (Standard)

Battu-uji (Malay). Touchstone. (Lock)

Batu Kawi (Sumatra). A red stone supposed to be an infallible sign of gold. (Lock)

Bauleao (Sp. Am.). Pyrite with cubic crystallization. (Lucas)

Baulite. *See* Krablite.

Baulk. *See* Balk, 1.

Baum-pots (York.). Calcareous nodules found in the shale forming the roof of the "Halifax hard" coal seam. (Gresley)

Bauxite. Hydrated alumina. Essentially $Al_2O_3.2H_2O$ (Dana). The principal ore of aluminum.

Baveno twin. A twin crystal of a kind shown by orthoclase, in which the twining plane is the clinodome, resulting in a nearly square form. (Webster)

Bavin (Eng.). Impure limestone. (Standard)

Bawke (Eng.). A bucket for raising coal (Standard). *See also* Bowk, 1 and 2.

Bay. 1. An open space for waste between two packs in a longwall working. *See also* Bord. (C. and M. M. P.)
2. An inlet of the sea usually smaller than a gulf, but of the same general character. (Webster)

Bayou. 1. A sluggish or stagnant inlet or outlet from a lake or bay, or one connecting two bodies of water. (Standard)
2. *See* Oxbow.

Bay salt. The large crystalline salt of commerce, especially that obtained from sea water by evaporation in shallow pits or basins by the heat of the sun. (Webster)

Bayshon (Som.). An air stopping. (Gresley)

Bazofia (Peru). Waste rock. (Dwight)

Beach. The washed shore of a sea or lake. (Hitchcock)

Beach combing. Working the sands on a beach for gold, tin, or platinum. (C. and M. M. P.)

Beach placers. Placer deposits either on a present or ancient sea beach. There are a series of these at Nome, Alaska, known there as first, second, or third beach, etc., due to change of shore line.

Bead. 1. The globule of precious metal obtained by the cupellation process. 2. A glassy drop of flux, as borax, used as a solvent for a color test for several mineral earths and oxides before the blowpipe. (Webster)

Bead furnace. A furnace in which small cylinders of glass are rounded into beads. The cylinders are heated to softening and revolved in a drum. (Webster)

Beam compass. An instrument consisting of a wooden or brass beam having sliding sockets that carry steel or pencil points, used for describing large circles and for laying off distances. (Century)

Bean ore. A name for limonite, when found in lenticular aggregations. Called also Pea ore, when found in small, rounded masses (Chester). A coarse-grained pisolitic iron ore. (Power)

Beans (No. of Eng.). All coal which will pass through a half-inch screen or mesh. (Gresley)

Bean-shot. Copper granulated by pouring into hot water. (Raymond)

Bear. 1. *See* Salamander; *also* Sow.
2. To bear in. Underholing or undermining; driving in at the top or at the side of a working. (Chance)

Bearer bar. One of the bars which support the gratebars in a furnace. (Century)

Bearers. 1. (So. Staff.) Women formerly employed to carry coal out of the mines. (Gresley)
2. Heavy timbers placed in a shaft at intervals of 30 to 100 ft. to support the shaft sets. They are usually put beneath the end plates and dividers, and rest in hitches cut in the wall. Also used to support pumping gear.

Bearers' way (Scot.). An underground road or passage along which the bearers carry coal. (Barrowman)

Bearing. 1. The course or direction indicated by a compass. 2. The strike or course of a vein. 3. The points of support of a beam, shaft, or axle. (Steel)

Bearing door. A door placed for the purpose of directing and regulating the amount of ventilation passing through a portion of the mine. (Gresley)

Bearing-in. The depth of an under-cut, or holing, from the face of the coal to the end of the under-cut. (Steel)

Bearing pit (Scot.). A shaft up which coal was (in former years) carried by bearers. (Barrowman)

Bearing road (Scot.). *See* Bearer's way.

Bearing system (Eng.). The employment of women to carry coal out of the mine. (Gresley)

Bearing-up pulley. A pulley wheel fixed in a frame and arranged to tighten or take up the slack rope in endless haulage. (Gresley)

Bearing-up stop. A partition or brattice of plank that serves to conduct air to a face. (Ihlseng)

Bears (Derb.). Calcareous nodules of clay-ironstone. (Gresley)

Beat (Eng.). 1. The surface outcrop of a load or bed. (Davies)
2. (Corn.) To stope. (Pryce)

Beat away. A process of working hard ground by wedges and sledge hammers. (Skinner)

Beater. 1. (No. of Eng.) An iron rod for packing the stemming on a charge of powder in a drill hole. (Webster)
2. (Mid.) A wooden mallet for consolidating, or packing, the clay in building a wall or dam to make it air-tight. (Gresley)

Beat-hand (Eng.). A hand which, from being vesicated or blistered with hard work, has festered. (G. C. Greenwell)

Beaumontite. A variety of heulandite. (Dana)

Beauxite. *See* Bauxite.

Beaverite. A hydrous sulphate of copper, lead, and ferric iron $CuO.PbO.Fe_2O_3.2SO_3.4H_2O$. (U. S. Geol. Surv.)

Beche; Biche (Eng.). A deep conical instrument about 25 inches long, and weighing 6 pounds. The hollow part extends 16 inches up into the tool, and is 1½ inches in diameter at the lower end, and tapers to ⅝ inch at the upper end. It is used for extracting the bottom portion of a broken set of rods from a bore hole. (G. C. Greenwell)

Bechilite. An incrustation of hydrous calcium borate, $H_8CaB_4O_{11}$, found as a deposit at the boric acid lagoons of Tuscany. (Standard)

Becke test. In optical mineralogy, a test for relative indices of refraction. (A. F. Rogers)

Becquerel rays. Radiations from uranium compounds. (Webster)

Bed. 1. The smallest division of a stratified series, and marked by a more or less well defined divisional plane from its neighbors above and below. (Kemp)
2. A seam or deposit of mineral, later in origin than the rock below, and older than the rock above; that is to say, a regular member of the series of formations, and not an intrusion (Raymond). A deposit, as of ore (or coal), parallel to the stratification. (Standard)
3. That portion of an outcrop or face of a quarry which occurs between two bedding planes. (Buckley)
4. The level surface of rock upon which a curb or crib is laid. (Gresley)
5. The bottom of a water course, or of any body of water. 6. A mass or heap of anything (as ore), arranged in the form of a bed. (Webster)

Bed claim (Aust.). A mining claim lying on the bed of a stream. (Davies)

Bedded. Applied to rocks resulting from consolidated sediments, and accordingly exhibiting planes of separation designated bedding planes. (Sloan)

Bedded deposit. *See* Bedded formation.

Bedded formation. A formation which shows successive beds, layers, or strata, due to the manner in which it was formed (Farrell). A bedded deposit.

Bedded vein. Properly "bed vein" (*Lagergang* of the Germans); a lode occupying the position of a bed, that is, parallel with the stratification of the inclosing rocks. (Raymond) *See also* Bed, 2.

Bedded volcano. A volcano whose crater consists of layers of tuffs and lava sheets. (Century)

Bedding. 1. The exact equivalent of stratification, or occurrence in strata or beds (Century). *See also* Bed, 1 and 2.
2. The arrangement of coke, ore, flux, etc., in layers for storage or treatment.

Bedding fault. In geology, a dislocation which follows planes of stratification. (Standard)

Bedding planes. The planes or surfaces separating the individual laminæ or beds of a sedimentary rock. (La Forge) *See also* Stratification planes.

Bede. A miner's pickaxe. (Raymond)

Bedford limestone. A light-colored oölitic limestone from Bedford, Indiana (Webster). Much used as a building stone.

Bed joint. A horizontal joint (Webster). *See also* Bedding plane. Originally horizontal, but may be found inclined due to later uplifting.

Bedplate. 1. An iron plate forming the bottom for a furnace. 2. A heavy plate for supporting an engine or other heavy machinery. (Webster)

Bedrock. The solid rock underlying auriferous gravel, sand, clay, etc., and upon which the alluvial gold rests (Roy. Com.). Any solid rock underlying soil, sand, clay, etc.

Beds of passage. Beds in which the fossils or rocks, from their resemblance to those contained either in the bed above or the bed below, indicate the transition character of the deposit. (Standard)

Bedstone. In milling, the lower or stationary millstone. (Century)

Bed vein. *See* Bedded vein.

Bedway. An appearance of stratification, or parallel marking, in granite. (Raymond)

Beech coal. Charcoal made from beech wood. (Century)

Beeches (Scot.). Strips of hardwood fastened to pump rods to save them from wear at the collars. (Barrowman)

Beehive coke. Coke made in a beehive oven. (Webster)

Beehive oven. An oven for the manufacture of coke, shaped like the old-fashioned beehive (Raymond). The volatile products as tar, gas, and ammonia are not saved.

Beekite. A crytocrystalline variety of quartz, resembling chalcedony, formed by the replacement of limestone, as coral, or shells, with silica. (Standard)

Beele (Prov. Eng.). A mining pickax with both ends sharp. (Standard)

Beerbachite. A name given by Chelius to certain small dikes, asociated with and penetrating large, gabbro masses, and having themselves the composition and texture of gabbro. The name was coined in the attempt to carry out the questionable separation of the dike rocks from large, plutonic or volcanic masses of the same mineralogy and structure. (Kemp)

Beer stone (Eng.). An argillaceous and siliceous freestone dug from quarries at Beer, ten miles west of Lyme Regis, at the passing of the chalk into the greensand. (Roberts)

Beetle (Eng.). A small compressed-air locomotive employed on the haulage-ways at Newbottle Collieries. (G. C. Greenwell)

Beetle-stone. A nodule of coprolitic ironstone, so named from the resemblance of the inclosed coprolite to the body and limbs of a beetle. (Century)

Before breast. Rock or vein material, which still lies ahead. (C. and M. M. P.)

Behead. In geology, to cut off and capture by erosion the upper portion of a watercourse: said of the encroachment of a stronger stream upon a weaker one. (Standard)

Bekko ware. A yellow-brown splashed pottery made in Japan. It resembles tortoise shell. (Century)

Belgian oven. A rectangular oven with end doors and side flues for the manufacture of coke. (Raymond)

Belgian process. A process most commonly employed in the smelting of zinc. Roasted zince ore, mixed with a reducing material, as coal or coke, is placed in retorts which consist of cylindrical pipes of refractory material closed at one end, of a length and diameter convenient for charging and cleaning them. A number of these retorts are placed slightly inclined in a properly constructed furnace. The open ends of the retorts are covered with a sheet-iron hood to which are connected short conical sheet-iron pipes discharging the molten zinc downward. (Goesel)

Belgian zinc-furnace. A furnace in which zinc is reduced and distilled from calcined ores in tubular retorts (Raymond). These furnaces may be classified as direct-fired and gas-fired, but there is no sharp division between these systems, which merge into one another by difficulty definable gradations. Each class of furnace may be subdivided into recuperative and nonrecuperative, but heat recuperation in connection with direct firing is rare. (Ingalls, p. 428).

Bell. 1. Overhanging rock of bell-like form, not securely attached to the mine roof. "Pot" is the common Arkansas term. (Steel)
2. A gong used as a signal at mine shafts. 3. To signal by ringing a bell.

Belland. 1. (Eng.) Dusty lead ore. (Bainbridge)
2. A form of lead poisoning to which lead miners are subject. (C. and M. M. P.)

Bell-and-hopper. *See* Cup-and-cone.

Bell-and-spigot joint. The usual term for the joint in cast iron pipe. Each piece is made with an enlarged diameter or bell at one end into which the plain or spigot end of another piece is inserted when laying. The joint is then made tight by cement, oakum, lead, rubber, or other suitable substance which is driven in or calked into the bell and around the spigot. (Nat. Tube Co.)

Bell crank (Scot.). A triangular iron frame used to change the direction of reciprocating motion. (Barrowman)

Belled (Eng.) Widened. Said of the enlarged portion of a shaft at the landing for running the cars past the shaft, and for caging. (Gresley)

Belleek porcelain. An extremely thin ware, decorated with a nacreous luster suggesting the interior of shells, made originally in Belleek, Ireland, and since successfully imitated in Trenton, N. J., and elsewhere. (Standard)

Bell holes. 1. Holes dug or excavations made at the section joints of a pipe line for the purpose of repairs. (Moore *v.* Hole Natural Gas Co., 66 Southeastern, p. 565)
2. A conical cavity in a coal-mine roof caused by the falling of a large concretion; or, as of a bell-mold.

Bellies. Widenings in a vein (Power). *See also* Belly.

Bellite. An explosive consisting of five parts of ammonium nitrate to one of metadinitrobenzene, usually with some potassium nitrate. (Webster)

Bell metal. A hard bronze, containing sometimes small proportions of iron, zinc, or lead, but ordinarily consisting of 78 parts copper to 22 tin. (Raymond)

Bell-metal ore. (Corn.) An early name for tin pyrites, so called on account of its bronze color. (Chester)

Bell-mold; Bell-mould; Bellmouth (Som.). A conical shaped patch of a mine roof, probably originating with the fossils called *sigillaria*, or the roots of trees (Gresley). *See also* Bell, 1.

Bellows. An instrument or machine for blowing fires or for ventilating purposes. (Webster)

Bell-pit (Derb.). A mine working argillaceous ironstone by a system called Bell-work (Gresley). *See also* Bell-work.

Bell process. *See* Bell's dephosphorizing process.

Bells. Signals for lowering and hoisting the bucket, skip, or cage in a shaft. Usually given by bells, the number of strokes indicating the nature of the load, the place for stopping, etc. (Weed)

Bell screw; Screw bell. An internally threaded bell-shaped iron bar, for recovering broken or lost rods in a deep bore hole. *See also* Biche. (Gresley)

Bell's dephosphorizing process. The removal of phosphorus from molten pig iron in a puddling furnace, lined with iron oxide and fitted with a mechanical rabble to agitate the bath. Red-hot iron ore is added. *See also* Krupp's washing process. (Raymond)

Bell-sheave (Aust.). A sheave in the shape of a truncated cone, used in connection with the main-and-tail system of rope haulage at curves, so as to keep the rope close to the ground. (Power)

Bell-work. 1. (Derb.). A system of working an iron-stone measure by upward underground excavations, around the shafts (raises) in the form of a bell or cone (Gresley). *Compare* Milling.
2. A method also used in working salt deposits. (Standard)

Belly. A bulge, or mass of ore in a lode. (Skinner)

Belly-helve (Eng.). A forge hammer, lifted by a cam which acts about midway between the fulcrum and the head. (Raymond)

Belly-pipe. A flaring mouthed blast pipe in an iron furnace. (Standard)

Belonesite. A white transparent magnesium molybdate, $MgMoO_4$, crystallizing in the tetragonal system. (Dana)

Belonite. A rod-shaped or club-shaped microscopic embryonic crystal in a glassy rock. (Kemp)

Belt. 1. A zone or band of a particular kind of rock strata exposed on the surface (Roy. Com.). *Compare* Zone.
2. A continuous strap or band for transmitting power from one wheel to another, or (rarely) to a shaft, by friction. (Standard)

Belugite. A name based upon the Beluga River, Alaska, and suggested by J. E. Spurr for a transition group of plagioclase rocks between his diorites and diabases. Spurr restricts the name diorite to those plagioclase rocks (without regard to the dark silicate) whose plagioclase belongs in the andesine-oligoclase series. The diabase group, on the other hand, contains those whose plagioclase belongs in the labradorite-anorthite series. Belugites with a porphyritic texture and a fine-grained or aphanitic groundmass are called Aleutites. (Kemp)

Ben. 1. (Scot.). Inward; toward the workings; the workman's right to enter the pit. 2. The day's work of a youth, indicating the proportion of a man's task which he is able or allowed to put out, is termed quarter-ben, half-ben, three-quarter-ben. (Barrowman)
3. A mountain peak: a word occurring chiefly in the names of many of the highest summits of the mountains of Scotland, as Ben Nevis. (Century)

Bench. 1. One of two or more divisions of a coal seam, separated by slate, etc., or simply separated by the process of cutting the coal, one bench or layer being cut before the adjacent one. 2. To cut the coal in benches. (Raymond)
3. A terrace on the side of a river or lake, having at one time formed its bank. (Power) *See also* Benches.
4. A small tram or car of about 7 cubic feet capacity used for carrying coal from the face to the chute down which it is dumped to the gangway platform for reloading into larger cars. 5. (Leic.). To wedge the bottoms up below the holing. (Gresley)
6. A level layer worked separately in a mine. 7. A group of retorts in an oven or furnace; also the complete oven or furnace containing a set or group of retorts for generating illuminating gas. (Webster)
8. (Eng.). A ledge left, in tunnel construction work, on the edge of a cutting in earth or in rock. (Simms)
9. (Scot.). A landing place. (Barrowman)

Bench-and-bench (Ark.). That plan of mining coal in a room, which requires the blasting of the two benches of coal alternately, each a little beyond the other (Steel). Also called Bench working.

Bench diggings. River placers not subject to overflows (C. and M. M. P.) *See also* Bench placers.

Benchers (Eng.). Men employed in the mine at the bottom of inclined planes. (Gresley)

Benches. A name applied to ledges of all kinds of rock that are shaped like steps or terraces. They may be developed either naturally in the ordinary processes of land degradation, faulting, and the like; or by artificial excavation in mines and quarries. (Kemp)

Bench gravel (Yukon and Alaska). Gravel beds which occur on the sides of the valleys above the present stream bottoms, representing parts of the bed of the stream when it was at a higher level. Regarded by Tyrell as the terminal moraines of small glaciers. (Ore Dep., p. 393)

Benching. 1. (Eng.) *See* holing. To break the bottom coal with wedges when the holing is done in the middle of the seam. 2. (Ches.) The lower portion of the rock-salt bed worked in one operation. (Gresley)
3. *See* Bench, 8. (Simms)
4. (Eng.). Benches collectively as in a mine (Webster). *See also* Bench, 6.

Benching shot (Scot.) A shot placed in a hole bored vertically downward in an open face of work. (Barrowman)

Benching-up (Newc.). Working on the top of coal. (Raymond)

Bench mark. A mark, the elevation of which is known or assumed and used as a reference point by a surveyor.

Bench placers. Placers in ancient stream deposits from 50 to 300 feet above present streams. (U. S. Geol. Surv., Bull. 259, p. 33)

Bench stone. A rectangular stone measuring from 4 to 8 or 9 inches long by approximately 2 inches wide and varying in thicknesses. In use it generally rests on the artisan's bench, whence its name. Some bench stones are made circular for those who prefer the rotary motion in sharpening chisels and similar instruments. (Pike)

Bench working. The system of working one or more seams or beds of mineral by open working or stripping, in stages or steps (C. and M. M. P.). Also called Bench-and-bench.

Benchy. Forming frequent benches: said of a lode. (Standard)

Bend (Corn.). Indurated clay; a term applied by the miner to any hardened argillaceous substance. *See also* Bind, 1. (Whitney)

Bend away; or, Away (No. of Eng.). An exclamation meaning to raise the cage in the shaft. (Gresley)

Bender (Eng.) An iron loop on pump cylinders for attaching a hoisting rope. (Bainbridge)

Bending stress. The stress produced in the outer fibers of a rope by bending over a sheave or drum. (C. M. P.)

Bends. *See* Caisson disease.

Bend up; Bend up a bit (Eng.) An order to raise the cage slowly, so that it may be instantly stopped on the order "Hold" being given. (G. C. Greenwell)

Beneficiación (Sp.). As used in English usually means the reduction of ores. (Raymond)

Beneficiar (Sp.). 1. To work or improve a mine. 2. To derive profit from working a mine. (Halse)
3. (Mex.) To treat ores for extraction of metallic contents; to *beneficiate*. (Dwight)

Beneficiate. 1. To work or improve, as a mine. 2. To reduce, as ores. (Standard)

Beneficiation. The reduction of ores. (Webster)

Beneficio (Sp.). 1. The working of mines. 2. Profit derived from working a mine. 3. Metallurgical processes. *B. de cazo*, the caldron or hot amalgamation process. *B. de hierro*, amalgamation reduction with the addition of fragments of iron. *B. de colpa*, the *patio* process with *colpa* in lieu of *magistral*. *B. de pella de plata*, amalgamation reduction with the addition of silver amalgam. *B. de patio*, the *patio* or cold amalgamation process. *B. de toneles*, the Freiberg or barrel amalgamation process. *B. por cianuración*, the cyanide process. *B. por cloruración*, the chlorination process. *B. por faego*, reduction by smelting. 4. *B. de metales*, mechanical preparation of ores; ore dressing. (Halse)

Ben-Heyl (Corn.). A stream, where tin ore is found. (Davies)

Benitoite. A blue barium-titanium silicate, $BaTiSi_3O_9$, so far found only in California. Used as a gem. (U. S. Geol. Surv.)

Benk (Eng.). The working face of a coal bed (Bainbridge). A variation of Bench.

Bent. 1. (Scot.). The subsidence of roof near working face, *e. g.* a bent roof. (Gresley)
2. A framed section placed together on the ground, and afterwards raised to a vertical position. (Webster)
3. (Derb.). An offshoot from a vein. (Hooson)

Bentonite. A bedded plastic clay which swells very greatly upon wetting. (U. S. Geol. Surv.)

Benzine. A colorless, inflammable and volatile liquid obtained from petroleum by fractional distillation and consisting of various hydrocarbons. Called also Petroleum spirit. (Standard)

Benzinum. A distillate from American petroleum consisting of hydrocarbons chiefly of the marsh-gas series. (Bacon)

Benzoline. 1. The more volatile portion obtained on redistilling benzine; boiling point about 70°–95° C. Often used as synonymous with Benzine. (Bacon)
2. A mixture containing hexane, heptane, octane, and other paraffins, petroleum spirit or legroin. (Standard)

Benzoyl. The commercial name applied to a mixture of substances, including benzene and its homologues. (Mitzakis)

Beraunite. A foliated and columnar red to reddish-brown hydrous ferric phosphate. (Dana)

Berdan pan. Essentially a revolving circular trough, set at an inclination of about 45 deg. carrying a large ball or drag, and used to amalgamate the gold or silver.

Berea sandstone. Berea grit. A rock formation consisting of fine-grained sandstone and grit, generally considered as the base of the Carboniferous system in Ohio. It is much used as a building stone and for grindstones, and is one of the principal oil-bearing formations of the State. (La Forge)

Berengelite. A dark brown, resinous, asphalt-like mineral, soluble in cold alcohol but nearly insoluble in potassium hydroxide. Found near Arica, Peru. (Bacon)

Beresite. A name coined by Rose for a muscovite-granite that forms dikes in the gold district of Beresovsk in the Urals. It is, therefore, practically a synonym for aplite, as earlier defined, but some of the beresites have since been shown to be practically without feldspar and to form a very exceptional aggregate of quartz and muscovite. (Kemp)

Bergmehl; Bergmeal. 1. An infusorial earth, sometimes eaten mixed with meal or bark. Called also Mountain-meal. 2. A white efflorescence of calcite, resembling cotton. Called also Rock-meal and Fossil-farina. (Standard)

Bergmeister (Pr.) An inspector of mines. (Gresley)

Bergschrund (Ger.). In geology, a rifting and faulting in a solid mass of rock or glacial ice. (Standard)

Berg-till. *See* Till.

Berilo (Sp.). Beryl; *B. verdemar*, aquamarine. (Halse)

Berlin blue. In optical mineralogy, an anomalous interference color of the first order. (A. F. Rogers)

Berlin iron. A soft iron, containing phosphorous, making very fine smooth castings, and used for ornaments and jewelry. (Standard)

Bermellón (Sp.). Vermilion; an earthy variety of cinnabar. (Halse)

Bernardo's process. A method for the electric welding of iron. (Goesel)

Berthierite. A sulphide of antimony and iron, of a dark steel-gray color, $FeS.Sb_2S_3$. (Dana)

Bertrandite. A brilliant, transparent, colorless, hydrous glucinum silicate, $H_2Gl_4Si_2O_9$, crystallizing in the orthorhombic system. (Standard)

Bertrand lens. In optical mineralogy, a small lens inserted in the microscope tube to magnify the interference figure. (A. F. Rogers)

Beryl. A glucinum-aluminum silicate, $3GlO.Al_2O_3.6SiO_2$. Used as a gem when clear and well colored. The grass-green variety is known as emerald; light-green, beryl; blue-green, aquamarine. Contains 14 per cent glucina (glucinum oxide). (U. S. Geol. Surv.)

Beryllium. *See* Glucinum.

Berylloid. In crystallography, a solid included under twenty-four similar scalene triangular faces. (Standard)

Berzelianite. A copper selenide, Cu_2Se, having a silver white color when freshly broken. (Webster)

Berzeliite. A massive bright, yellow, brittle calcium-magnesium-manganese arsenate, $(Ca,Mg,Mn)_3As_2O_8$. (Dana)

Bessemer. A product of the Bessemer process, as Bessemer steel: named from Henry Bessemer, who patented the process in 1855: used also attributively; as, Bessemer converter, flame or process. (Standard)

Bessemer iron. Pig iron suitable for the Bessemer process. (Raymond)

Bessemer ore. Iron ore containing little or no phosphorus hence especially suited for use in the Bessemer process. (Standard)

Bessemer process. The process of decarburizing a bath of molten cast iron by blowing air through it, in a vessel called a converter (Raymond). Other impurities, in small amounts, are also eliminated. Also, by analogy, the enrichment of copper matte by blowing air through it when molten, thus oxidizing the sulphur which escapes as SO_2. The iron combines with silica, forming a slag. *See also* Converting.

Bessemer steel. Steel made by the Bessemer process. (C. and M. M. P.)

Beta-jaulingite. A brownish yellow resin, obtained from the residue of Jaulingite, by the action of ethyl ether, after treatment with carbon disulphide. (Bacon)

Bethell process. A process of timber preservation in which a heavy coal-tar oil is used. *See also* Gallatin.

Beting (Malay) A quartzose-gold matrix. (Lock)

Béton (Fr.). Concrete made after the French fashion by mixing gravel or other material with a mortar of cement and sand. (Webster)

Betriebsfuhrer (Pr.). The mining engineer or manager of a coal mine, who is personally responsible for the safety of the workings. (Gresley)

Betriebsplan (Pr.). A sketch or rough plan of underground workings, to be developed during the next 12 months. (Gresley)

Betrunked. Deprived of its trunk or main body; said of certain river systems, whose tributaries in the dry season, for lack of sufficient water, fail to unite in a main trunk, but are dissipated in the arid ground. (Standard)

Betterness. Fineness of gold and silver above the standard. (Standard)

Betts lead-refining process An electrolytic process using $PbSiF_6$ acidulated with hydrofluoric acid as the electrolyte. (Liddell)

Betún (Sp.) Bitumen; asphaltum. *B. marga*, bituminous marl. (Halse)

Beudantite. A ferric lead sulphate or arsenate occurring in green to black rhombohedral crystals. (Shaller, Wash. Ac. Sci., vol. 1, p. 112; 1911)

Beuheyl (Corn.) A live stream (vein), that is, one rich in tin (Pryce). Also spelled Ben-Heyl.

Bevel. 1. The angle which one surface or line makes with another when they are not at right angles. 2. An instrument consisting of two arms joined together and opening to any angle, for drawing angles or adjusting the surfaces of work to a given angle. 3. To slope or slant. (Webster)

Bevel gear. A gear wheel whose teeth are inclined to the axis of the wheel. (Steel)

Bevelment. The replacement of an edge of a crystal by two planes equally inclined to the adjacent faces. (Standard)

Bevel wheel. *See* Bevel gear.

Bewaarplaatsen (South Afr.). A site for depositing ore. (Skinner)

Bezel. A facet of a gem. (Standard)

Biard. *See* Bearers, 2.

Biat; Byat (Eng.). A timber stay or beam in a shaft (Gresley). *See also* Bearers, 2.

Biaxial. Having two optic axes or lines of no double refraction. (Webster)

Bibbles (Derb.). A soft water-bearing stratum encountered during shaft sinking. (Hooson)

Bibbley rock (So. Staff.). A conglomerate or pebbly rock (Gresley)

Bibliolite. A laminated schistose rock; a bookstone. (Standard)

Bica (Braz.). An inclined portion of a sluice. (Halse)

Bicarbonate. A salt of carbonic acid in which but one of the hydrogen atoms is replaced by a base; as bicarbonate of soda $NaHCO_3$, called also Monocarbonate, Primary carbonate, Supercarbonate. (Standard)

Bicharra (Peru). A small furnace with an inclined stack. (Dwight)

Biche (No. of Eng.). A hollow conical-headed tool for extricating broken rods from bore holes (Gresley). *See also* Beche.

Bichloride. A salt in which there are two atoms of chlorine, as bichloride of mercury, $HgCl_2$. (Standard)

Bichromate. Same as dicromate. (Standard)

Bichromate cell. A zinc-carbon cell having as the exciting fluid an acid bichromate solution and provided with the means of raising the zinc, or both zinc and carbon, from the fluid when not in use. E. M. F. about 2 volts. (Webster)

Biddix (Corn.). A double pick, with spoonbill points, used for excavating alluvial or surface earth. (Standard)

Bidri. 1. (Anglo-Ind.) A process of damaskeening with silver on a ground consisting of an alloy of copper, lead, and tin, blackened by the application of a solution of sal ammoniac, saltpeter, salt, and copper sulphate. 2. Articles made by the foregoing process; bidriware. Called also Biddery; Biddery-ware; Bidery; Bidri-work; Bidry. (Standard)

Bieberite. A vitreous, flesh-red to rose-red hydrous cobalt sulphate, $H_{14}CoSO_{11}$, crystallizing in the monoclinic system. (Dana)

Bielzite. A brittle, resinous, brownish black hydrocarbon mineral from Transylvania; it has a specific gravity of 1.249, and dissolves in considerable part in carbon disulphide and chloroform. (Bacon)

Bifurcación (Sp.). 1. The branching of a vein. 2. A branch road. (Halse)

Bifurcate. To divide into two branches (Webster). Said of an ore vein.

Bigging (No. of Eng.). A built-up pillar of stone or other débris in a working place or heading to support the roof, *e. g.* "bigging the gob" means, building a pack in a worked-out place. (Gresley)

Bigorneta (Sp.). A small anvil. (Min. Jour.)

Bigornia (Mex.). Anvil. *See also* Yunque. (Dwight)

Bigote (Sp.). A semicircular taphole in a furnace. (Halse)

Bilca (Peru). A rawhide receptacle in which filtered mercury collects. (Pfordte)

Biji timah (Malay). Small nodules in clay deposits.

Bildar (Hind.). A digger; an excavator. (Webster)

Bildas (or Buildhouse) (So. Staff.). The shift working from 6 A. M. till 9, and sometimes 10 o'clock, is termed a bildas. This was originally denominated Buildhouse, from the fact of the butty (contract miner) making so much money that he was able to build many houses from the exactions thus made upon the poor men, who received inadequate remuneration. (Min. Jour., 1871)

Bildstein (Ger.). A soft stone; agalmatolite. (Standard)

Bilitrones (Sp. Am.). A communication between washing troughs. (Lucas)

Bill day (No. of Eng.). That day on which colliery accounts are examined. (Gresley)

Billet. 1. Iron or steel, drawn from a pile, bloom, or ingot into a small bar for further manufacture. 2. A small bloom. (Raymond)
3. (Som.). A short timber prop. (Gresley)

Billeting roll. A set of rollers having flattening and edging grooves, used in rolling iron into merchantable bars. (Century)

Billon (Fr.). 1. In coinage, an alloy of gold or silver with some baser metal, generally copper or tin; specifically, a low alloy of silver with a large proportion of copper, used in making token and medals, and, in some countries, especially Austria, coins. 2. Coin struck from such an alloy. (Standard)

Billot (Fr.). Gold or silver in the mass or ingot intended for coinage. (Standard)

Billy. 1. (Forest of Dean). A box for holding ironstone, carried by a boy in the mine. 2. *See* Billy playfair. (Gresley)
3. (Aust.) A name used in the Clermont district of Queensland for a bed of quartzite that caps the coal measures. (Power)

Billy boy. A boy who attends a Billy playfair. (C. and M. M. P.)

Billy playfair; Fair-play (Wales). A mechanical contrivance for weighing small coal which passes through the screen. (Gresley)

Bimbalete (Peru). A crude ore-mill operated by two men. The grinder is a large stone with a transverse bar by which a rocking motion is given. Also called Quimbalete. (Dwight)

Bimetalism. The concurrent use of both gold and silver as money at a fixed relative value, established by law; also, the doctrine advocating such use. (Standard)

Bin. A box, frame, crib, or inclosed place used as a receptacle for any commodity as coal, ore, etc. (Webster)

Bina (Eng.). Hard clayey substance (Bainbridge). A variety of bind.

Binary granite. A term more or less used in older geological writings for those varieties of granite that are chiefly quartz and feldspar. It has recently been applied to granites containing two micas. (Kemp)

Binches (Arg.). Crystals of pyrite occurring in a gold-bearing conglomerate. (Halse)

Binching. 1. (Som.). The stone upon which a bed of coal rests. (Gresley)

Bind; Binds; Bend (Derb.). 1. Indurated argillaceous shale or clay, very commonly forming the roof of a coal seam and frequently containing clay ironstone. 2. (No. of Eng.) To hire. (Gresley)

Binder. 1. (Corn.). Beds of grit in shale, slate, or clay. *See also* Bind, 1 (Power). A streak of impurity in a coal seam, usually difficult to remove.
2. (Corn.). An underground carpenter. (Davies)
3. Anything which causes cohesion in loosely assembled substances, as cement in a wall, crushed stone in a macadam road, fire clay in a graphite crucible, etc. (Webster)
4. The course, in a sheet-asphalt pavement, frequently used between the concrete foundation and the sheet-asphalt mixture of graded sand and asphalt cement. (Bacon)

Bindheimite. A hydrous antimonate of lead; an oxidation product of jamesonite. (U. S. Geol. Surv.)

Binding. 1. (No. of Eng.). Hiring of men for pit work. (Gresley)
2. A band of masonry so laid as to fasten together or strengthen adjoining parts. (Webster)

Binding bolts (Scot.). Bolts used to secure machinery to the foundations. (Barrowman)

Binding coal. Coal which cakes on burning. (Bacon)

Bin feeder. A man who rods or bars ore that sticks as it passes through the bin door. (Willcox)

Bing. 1. (No. of Eng.). A pile or heap of anything. Specifically: A heap of metallic ore, etc. 2. The kiln of a furnace for making charcoal used in metal smelting (obsolete). (Standard)
3. Eight hundred weight of ore. (Raymond)
4. (Eng.). The best quality of lead ore. (Webster)
5. (Scot.). A place where coal is stocked, or débris is piled at the surface. 6. To put coal in wagons or in stacks at the surface. (Gresley)

Bing-hole (Derb.). A hole or chute through which ore is thrown. (Raymond)

Bing ore (Derb.). The largest and best kind of lead ore. (Hunt)

Bingplace (Derb.). The place where ore is stored for smelting. (Min. Jour.)

Bingstead (Eng.). 1. The place where lead ore is dressed. (Hunt)
2. A place for storing ore, coal, etc. *Compare* Bing, 1 and 5.

Bing-tale (No. of Eng.). A synonym for Tribute.

Bin man. One who pokes down ore in bins to keep it feeding through the chutes. (Willcox)

Binnite. A dark steel-gray metallic copper sulpharsenite, $Cu_6As_4S_9$, that crystallizes in the isometric-tetrahedral system. (Dana)

Biotite. A magnesium-iron mica. The common black mica. Often used as a prefix to many names of rocks that contain this mica; such as biotite-andesite, biotite-gneiss, biotite-granite, etc. (Kemp)

Bipyramid. In crystallography, a double-ended pyramid. (A. F. Rogers)

Biquartz. A quartz plate of two sections which turn the plane of polarization in opposite directions. It is used with a polariscope. (Webster)

Bird's eye marble. A local name given to several varieties of marble in which the markings assume the appearance of a bird's eye. (Merrill)

Bi-refringence. The property possessed by crystals belonging to other than the isometric system of splitting a beam of ordinary light into two beams which traverse the crystal at different speeds, and as they pass out of it produce characteristic optical effects that are recognizable with the proper instruments or, in some cases, by the eye alone. Bi-refringence is also known as Double refraction. (Ransome)

Birmite. *See* Burmite.

Bischofite. A crystalline-granular and foliated, colorless to white hydrous magnesium chloride, $H_{12}MgCl_2O_6$. (Dana)

Biscuit. In ceramics, ware baked once, but not glazed; bisque. (Standard)

Bisectrix. A line bisecting the angle between the optic axes of a biaxial crystal. *See* Acute bisectrix; *also* Obtuse bisectrix. (Webster)

Bismite. Bismuth trioxide, Bi_2O_3, occurring as a straw-yellow earth, and as pearly white scales. (Dana)

Bismuth. One of the elements. A brittle, reddi white metal. Symbol, Bi, atomic weight, 208.0. Specific gravity, 9.8 (Webster). The reddish-color is possibly due to oxidation.

Bismuth blende. Same as Eulytite. (Standard)

Bismuth bronze. An alloy of bismuth with tin. (Standard)

Bismuth flux. A mixture of one part potassium iodide, one part acid potassium sulphate, and two parts of sulphur. Also made by mixing equal parts of potassium iodide and sulphur.

Bismuth glance. *See* Bismuthinite.

Bismuthinite. Bismuth trisulphide, Bi_2S_3. Contains 81.2 per cent bismuth. (Dana)

Bismuthite. *See* Bismutite.

Bismuth ocher. *See* Bismite.

Bismuth silver. 1. Same as Chilenite. 2. Same as Schapbachite. (Standard)

Bismutite. A basic bismuth carbonate of doubtful composition. Perhaps $Bi_2O_3.CO_2H_2O$. Contains 80 per cent Bismuth. (Dana)

Bismuto (Mex.). Bismuth. (Dwight)

Bismutosphärite. A yellow, spherical, fibrous bismuth carbonate, Bi_2CO_5, usually found as an alteration product of bismuthinite. (Dana)

Bisphenoid. In crystallography, a form apparently consisting of two sphenoids placed together symmetrically. (A. F. Rogers)

Bisque. In ceramics, biscuit; biscuit-ware, as in statuettes, dolls, etc. (Standard)

Bit. 1. A drilling chisel. *Compare* Auger-stem. (Chance)
2. The cutting end of a boring implement. (Raymond)
3. A pointed hammer for dressing hard stone, as granite. 4. The blade of an ax. 5. The copper head of a soldering iron. (Webster)

Bitches (Scot.). A set of three chains for slinging pipes in a mine shaft. (Barowman)

Bites (Colom.). Slime produced by grinding or stamping ore. (Halse)

Bitter. Applied to minerals having the taste of Epsom salts. (Dana)

Bitter earth. Magnesia.

Bittern. The bitter mother liquor that remains in salt works after the salt has crystallized out. (Webster)

Bitter spar. A pure, crystalline dolomite. It consists of one part or equivalent of calcium carbonate and one part of magnesium carbonate. Also called Pearl spar. (Roy. Com.)

Bitulithic. A kind of paving consisting of broken stone cemented with bitumen or asphalt. (Webster)

Bitumastic. A kind of bituminous paint or cement. (Webster)

Bitumen. *See* Asphalt. A general name for various solid and semisolid hydrocarbons. In 1912 the term was used by the American Society for Testing Materials to include all those hydrocarbons which are soluble in carbon bisulphide, whether gases, easily mobile liquids, viscous liquids, or solids. (U. S. Geol. Surv.)

Bitumenized. Converted into bitumen. (Hitchcock)

Bituminate. 1. To cement or cover with bitumen. 2. To charge or mix with bitumen. (Standard)

Bituminiferous. Yielding or containing bitumen. (Standard)

Bituminoso (Mex.). Bituminous. (Dwight)

Bituminous. 1. Containing much organic, or at least carbonaceous matter, mostly in the form of the tarry hydrocarbons which are usually described as bitumen. (Kemp)
2. Having the odor of bitumen. Often applied to minerals. (Dana)

Bituminous cement. A bituminous material suitable for use as a binder, having cementing qualities which are dependent mainly on its bituminous character. (Bacon)

Bituminous coal. Ordinary soft coal. *See* Coal.

Bituminous limestone. A limestone impregnated with bituminous matter and emitting a fetid odor when rubbed. Called also Stinkstone and Swinestone. (Standard)

Bituminous pavement. A pavement composed of stone, gravel, sand, shell or slag, or combinations thereof, and bituminous materials, thoroughly incorporated. (Bacon)

Bituminous sandstone. *See* Sandstone.

Bituminous shale. A shale containing hydrocarbons or bituminous material: when rich in such substances it yields oil or gas on distillation. Called also Pyroschist or Oil shale. (Standard)

Bituminous surface. In paving, a superficial coat of bituminous material, with or without the addition of stone or slag chips, gravel, sand, or material of similar character. (Bacon)

Bituminous wood. A variety of brown coal much resembling wood. (Chester)

Bitusol. Trinidad asphalt. It is said to be a true bitusol—that is to say, dispersed solid colloids in solution in bitumen. (Bacon)

Bivalent. Having a valence of two. *See also* Valence. (Webster)

Bizen ware. Fine, hard, unglazed pottery, usually grayish white; made in Bizen, Japan. (Webster)

Bizet. In gem cutting, the part of a brilliant (diamond) between the table and the girdle, occupying one-third of its depth and having 32 facets. (Standard)

Black alta. An argillaceous schist, found in the New Almaden quicksilver mine, Santa Clara County, California. (Hanks)

Black amber. A name given by amber-diggers to jet which is found with amber. It becomes faintly electric when rubbed. (Oldham)

Black and gold marble. *See* Porto marble.

Black ash. A solid black mixture of sodium carbonate and calcium sulphide produced by fusing sodium sulphate, limestone, and coal together in soda-ash manufacture. Called also Soda-ball and British barilla. (Standard)

Blackband. An earthy carbonate of iron, accompanying coal beds. Extensively worked as an iron ore in Great Britain, and somewhat in Ohio. (Raymond)

Black bat. A piece of bituminous shale embedded in the rock immediately over the coal measure and liable to fall of its own weight when the coal beneath it has been removed (Cinkovitch v. Thistle Coal Co., 143 Iowa, p. 597, 121 Northwestern, 1036). *Compare* Kettle bottom; Bell-mold.

Black butts. Discolored and imperfect coke, usually found at the bottom or side of the oven because of excessive moisture existing there; may also result from improper manipulation of the oven. Also called Black ends.

Black chalk. 1. A variety of blueish-black clay containing carbon. (Skinner)
2. A slate sufficiently colored by carbonaceous particles to answer the purpose of black lead in pencils for coarse work, such as marking stone. (Century)

Black coal (Scot.). Coal slightly burned by igneous rock (Barrowman). *See* Natural coke; Blind coal, 1.

Black copper. A name given to the more or less impure metallic copper produced in blast-furnaces when running on oxide ores or roasted sulphide material. It is always an alloy of copper with one or more other metals generally containing several per cent of iron, often lead, and many other impurities. It also contains from 1 to 3 per cent sulphur. (Peters, p. 227)

Black copper ore. *See* Melaconite; Tenorite.

Black coring. The development of black or bluish-black cores in bricks, due to improper burning. (Ries)

Black cotton (India). Soil from 6 to 10 feet in thickness overlying the coal measures, which in dry weather shrinks and produces mud cracks. (Gresley)

Black damp. A term generally applied to carbon dioxide. Strictly speaking, a mixture of nitrogen, and carbon dioxide. The average black damp contains 10 to 15 per cent carbon dioxide, and 85 to 90 per cent nitrogen. It is formed by mine fires and the explosion of fire damp in mines, and hence forms a part of the afterdamp. An atmosphere depleted of oxygen rather than containing an excess of carbon dioxide.

Black diamond. 1. A variety of diamond, opaque, dark colored, and without cleavage. (Moses)
2. A term frequently applied to coal. (Gresley)

Black earth. A kind of coal which is pounded fine and used by painters in fresco. (Century)

Black-ends (Eng.). *See* Black butts.

Blackening. In founding, the process of coating the faces of a mold with charcoal or similar fine powder, or with a mixture thereof with water; facing. (Standard)

Black flux. A flux obtained as a dark colored mass (consisting of potassium carbonate and finely divided carbon) by the deflegration of tartar with about half its weight of saltpetre. (Webster)

Black heat. A heat just below a dull red heat, at which iron or steel turns black (Webster). *Compare* Black-red heat.

Black hematite. A synonym for Psilomelane. (Chester)

Black horse. A term used by quarrymen in Rhode Island to denote a dark biotite-gneiss in contact with the granite. (Dale)

Blacking. Finely powdered charcoal, graphite, or a mixture thereof with water, or other form of powdered carbon, used in coating a mold, as in iron casting; blackwash; facing. (Standard)

Black iron. Malleable iron untinned: distinguished from Tinned or White iron. (Standard)

Black iron ore. A synonym for Magnetite. (Chester)

Blackjack. 1. A dark variety of zinc-blende or sulphide of zinc. It has a resinous luster and yields a light colored streak or powder. *See also* Blende; Sphalerite. (Dana)
2. Crude black oil used to lubricate mine-car wheels. 3. (Ark.) Soft black, carbonaceous clay or earth associated with coal. (Steel)
4. (Derb.) A kind of cannel coal. (Gresley)
5. (Ill.) A thin stratum of coal interbedded with layers of slate. A poor, bony coal.

Black latten. Milled sheet brass as used by braziers and wiredrawers. (Standard)

Blacklead. The common name for graphite, because it gives a mark on wood or paper like that of metallic lead. Also called Plumbago. (Roy. Com.)

Blacklead ore. An early name for the black variety of cerussite. (Chester)

Blackleg. 1. A strike breaker. 2. A swindler; a dishonest gambler. (Webster)

Black lignite. A coal intermediate between lignite and bituminous coal and not always distinguishable from one or the other on sight. Called also Subbituminous coal. (Watson)

Black list. Any list of persons who are for any reason deemed objectionable by the makers or users of the list, as for political or social misconduct, for joining in or assisting a strike, etc. (Century)

Black litharge. *See* Abstrich.

Blacklung. *See* Anthracosis.

Black-mob (Eng.). Slang for workmen who refuse to join a trades union. (Standard)

Black muck; Black mould (Lanc.). A dark-brown powdery substance, consisting of silica, alumina, and iron; found in iron mines. (Gresley)

Black ocher. Wad; bog manganese ore.

Black oil. A residue from petroleum or from its distillates. It varies widely in character and is used as a cheap lubricant. (Bacon)

Black ore (Eng.). Partly decomposed pyrite containing copper. (C. and M. M. P.)

Black oxide of manganese. *See* Pyrolusite.

Black pigment. Lampblack obtained by burning common coal tar. (Century)

Black plate. Sheet iron before tinning. (Raymond)

Blackpot (Eng.). A variety of coarse unglazed pottery. (Standard)

Black powder. A granular explosive containing approximately 74 per cent potassium nitrate, 16 per cent wood charcoal, and 10 per cent sulphur. For sporting powders the per cent of potassium nitrate is usually a little higher. *Compare* Blasting powder. (Brunswig, p. 238)

Black-red heat. The temperature of a metal at which it begins to be luminous by daylight (Standard). *Compare* Black heat.

Black-ring (So. Staff.). A thin bed of coal as seen in the shaft sides, having the appearance of a black circle or ring. (Gresley)

Blacks (Som.). Soft dark-colored shale. (Gresley)

Black sand. Heavy grains of various minerals which have a dark color, and are usually found accompanying gold in alluvial deposits, *e. g.*, magnetite, chromite, ilmenite, cassiterite, tourmaline, etc. (Power)

Black-sand beach. A beach where black sand occurs.

Black silver; Brittle silver ore. Same as Stephanite. (Standard)

Black solder. An alloy of copper, zinc, and a little tin. (Webster)

Blackstone (No. of Eng.). Highly carbonaceous shale. (Gresley)

Blackstrap. A dark, heavy oil used for lubricating mine-car wheels. *See also* Black jack, 2.

Black taggers. Thin sheet iron uncoated with tin. Black iron. (Standard)

Black telluride. *See* Nagyagite.

Black tin (Corn.). Dressed tin ore ready to be smelted. (Standard)

Black truck (Aust.). A box-shaped truck or car with end door, so called because it is made black with tar. (Power)

Black vitriol. An impure copper sulphate. (Standard)

Black wad. An early name for several minerals, including graphite and the softer manganese oxides. (Chester)

Blackwork. 1. Iron wrought by blacksmiths. 2. Forgings, rolled work, etc., which have not undergone a process that gives a bright finish. (Webster)

Bladed. Decidedly elongated and flattened (Butler). Said of some minerals.

Bladed structure. Consisting of parts resembling knife blades. (George)

Blae. 1. (Scot.) A hard sandstone, free from joints; also an underclay with balls of ironstone. *See* Bind. Called Blaes or Blaize (Gresley). 2. A soft shale or slate of bluish color (Webster). *See* Kingle.

Blagden's law. The law (of limited application) that the lowering of the freezing point is proportional to the amount of the dissolved substance. (Webster)

Blair process. An improved form of the Chenot process. (Raymond)

Blaisdell reclaiming apparatus. An apparatus for automatically discharging a sand tank having a central bottom opening. It consists of a central vertical shaft carrying four arms fitted with round plow disks. Sand is plowed toward a central opening and discharged on a conveyor belt (Liddell). Also called Blaisdell vat excavator.

Blaisdell sand distributer. An apparatus for loading sand tanks. It consists of a rapidly revolving disk with curved radial vanes. The disk is hung on a shaft in the center of the tank, and as sand is dropped on the disk it is distributed over the entire area. (Liddell)

Blaize (Scot.). *See* Blae.

Blake crusher. The original crusher of jaw type. A crusher with one fixed jaw plate and one pivoted at the top so as to give the greatest movement on the smallest lump (Richards, p. 1206). Motion is imparted to the lower end of the crushing jaw by toggle joint operated by eccentric.

Blake furnace. A furnace, the hearth of which consists of terraces rising from the outer edge to the center. The hearth is circular and revolves when in operation. (Ingalls, p. 116)

Blanc. In ceramics, an undecorated piece of pottery. (Standard)

Blanc fixe. A barium sulphate formed artificially as a heavy, white, insoluble precipitate. Used as a pigment. Also called Baryta white; Permanent white. (Webster)

Blanch. 1. (Eng.) Lead ore, mixed with other minerals. (Raymond)
2. To cover sheet iron with a coating of tin. (Webster)

Blanched copper. An alloy of copper and arsenic. (Raymond)

Blandura (Sp.). Soft, crumbly ground. (Halse)

Blanket. 1. A piece of cloth used in blanket sluices. (Webster)
2. *See* Blanket deposit; Blanket vein.
3. A bituminous surface of appreciable thickness generally formed on top of a roadway by the application of one or more coats of bituminous material and sand. (Bacon). Also called Carpet.

Blanket deposit. A flat deposit of ore of which the length and breadth are relatively great as compared with the thickness. The term is current among miners, but it has no very exact scientific meaning. More or less synonymous terms are flat sheets, bedded veins, beds or flat masses. Such deposits are frequently intercalated between rocks of different lithological character and origin, and may have been deposited in a regular sedimentary series, or subsequently introduced between the beds or impregnating them (Century) *See also* Blanket vein.

Blanketing. 1. Material caught upon the blankets used in concentrating gold-bearing sands or slimes. (Webster)
2. The process involved in definition 1.

Blanket shooting. Also termed Buffer shooting or Shooting against the bank. A term applied to a method of blasting on a face not exceeding 30 or 35 feet in height. It involves leaving at the quarry face a mass of shattered rock several feet in thickness that serves as a buffer, preventing the rock from being thrown far from its source, and also rendering the shot more effective. (Bowles)

Blanket sluice. A sluice in which coarse blankets are laid, to catch the fine but heavy particles of gold, amalgam, etc., in the slime passing over them. The blankets are removed and washed from time to time, to obtain the precious metal. (Raymond)

Blanket table, or strake (Aust.). A sloping board or table covered with baize for catching gold. (Davies)

Blanket vein. A horizontal vein or deposit. Sheet ground. A sheet deposit. "A vein in which the ore body covers the entire area within the limits of the surface lines of a mining location. The apex of a blanket vein is coextensive with the space between the side lines of a mining location." (Homestake Min. Co., In re, 29 Land Decisions, p. 689; Belligerent, etc., Mining Claims, In re, 35 Land Decision, p. 22.) (U. S. Min. Stat., p. 106). *See also* Blanket deposit.

Blanton cam. A device used for locking the cam on the camshaft in a stamp-mill. A wedging action is insured by means of a brass taper bushing.

Blast. 1. The operation of blasting, or rending rock or earth by means of explosives. 2. The air forced into a furnace to accelerate combustion 3. The period during which a blast furnace is in blast, that is, in operation. (Raymond)
4. An explosion of gas (or dust) in a mine. (Webster)
5. (Scot.). A fall of water in the down-cast shaft to produce or quicken ventilation. (Barrowman)
6. To give (a kiln) a specially hot firing at the last. (Standard)

Blast box. A chamber into or through which the air of a blowing engine passes. (Century)

Blast draft. The draft produced by a blower, as by blowing in air beneath a fire, or drawing out the gases from above it. A forced draft. (Webster)

Blasted. 1. A term applied to a miner who has been injured by an explosion of dynamite or gunpowder. (Weed)
2. Rent by an explosive. (Webster)

Blast furnace. A furnace in which combustion is forced by a current of air under pressure, especially for smelting ores. A blast furnace is designated as hot-blast or cold-blast according to the temperature of the air used for the blast. The furnace is usually vertical, but varies greatly in size and shape (Webster)

Blast hearth. A hearth in connection with which a blast is used, as in reducing lead ore. (Webster)

Blast-hole (Eng.). 1. The holes through which the water enters the bottom of a pump (Ure). *See also* Snore hole.
2. A hole for a blasting-charge. (Standard)

Blast-hole machine. A drilling machine of the Keystone type, used to drill holes 6 in. diameter and 35 to 40 ft. deep for the purpose of blasting down a large amount of ore or waste in advance of the steam-shovels. It is used in all of the great excavations of the disseminated copper deposits. (Min. and Sci. Press, vol. 113, p. 946.)

Blasting. 1. The operation of splitting rocks by gunpowder or other explosives (Century): as in mining and quarrying operations.
2. A method of loosening or shattering masses of solid matter, encountered during boring, by means of explosive compounds. Where petroleum occurs in a dense hard rock, recourse must sometimes be had to the use of explosives, the effect of these being to set up a subterranean disturbance, which may thus be the means of giving freer movement to the oil. (Mitzakis)

Blasting barrel. A piece of iron pipe, usually about ¾ inch in diameter, used to provide a smooth passageway through the stemming for the miner's squib. It is recovered after each blast and used until destroyed. (Du Pont)

Blasting cap. A copper shell closed at one end and containing a charge of detonating compound, which is ignited from the spark of the fuse. Used for detonating high explosives. (Du Pont)

Blasting cartridge. A cartridge containing an explosive to be used in blasting. (Webster)

Blasting circuit. The leading wires, connecting wires and connected electric blasting caps, when prepared for the firing of a blast. (Du Pont)

Blasting compounds. Explosive substances used in blasting. (Century)

Blasting fuse. A slow burning fuse used for igniting blasting charges. (Webster)

Blasting gelatin. A high explosive, consisting of nitroglycerin and nitrocotton. It is a strong explosive, and is a rubber-like, elastic substance, unaffected by water. (Du Pont)

Blasting machine. A portable dynamo, in which the armature is rotated by the downward thrust of the rack-bar or handle, used for firing blasts electrically (Du Pont). Also called Battery.

Blasting mat. A tightly woven covering of heavy manila rope or wire rope, or chain, made in various sizes, for covering the material to be blasted and preventing the flying of small fragments of rock. (Du Pont)

Blasting needle. A needle-like instrument for making an opening for a fuse (or squib). (Webster)

Blasting oil. Same as Nitroglycerin. (Century)

Blasting powder. A powder containing less nitrate, and in its place more charcoal than black powder. Its composition is 65 to 75 per cent potassium nitrate, 10 to 15 per cent sulphur and 15 to 20 per cent charcoal. In the United States sodium nitrate is largely used in place of the potassium salt. *Compare* Black powder. (Brunswig, p. 302)

Blasting stick. A simple form of fuse. (Raymond)

Blasting supplies. A term used to include electric blasting caps, ordinary blasting caps, fuse, blasting machines, galvanometers, rheostats, etc., in fact, everything used in blasting, except explosives. (Du Pont)

Blasting tube. An India rubber tubing used for holding nitroglycerin. (Webster)

Blast liquor. A liquid for bleaching, as a solution of chloride of lime. (Webster)

Blast meter. An anemometer for measuring the force of a blast. (Webster)

Blast nozzle. A fixed or variable outlet of a blast pipe. (Webster)

Blast pipe. A pipe for supplying air to furnaces. (C. and M. M. P.)

Blast-roasting. A generic term given by A. S. Dwight to a process of forcing air through finely divided metallic sulphides with the object of roasting and agglomerating in a single operation. The process which originated with Huntington and Heberlein in 1889 was confined to a galena concentrate, limestone being added to serve both as a diluent to keep separate the particles of galena that they might be thoroughly oxidized, and as a flux that the partly roasted ore might be agglomerated by the formation of a sinter. In the original Huntington and Heberlein process the galena concentrate, mixed with limestone, is given a preliminary rough-roast, in order to oxidize some of the sulphide and thus reduce its calorific power, before it is moistened and charged into the converting pot. In the later Savelsberg process the moistened galena-limestone mixture is blown direct without having been subjected to a rough-roast. In the third modification, the Carmichael-Bradford process, the mode of operating is the same as with the Savelsberg, only limestone is replaced by dehydrated gypsum. These three established processes, as well as some other modifications, are characterized as the up-draft operations and are usually intermittent; the Dwight-Lloyd process is the leading representative of the down-draft operation which is usually continuous. (Hofman, General Metallurgy, pp. 411–412)

Blatt (Ger.). A flaw or fault.

Bleacher. A settling tub used in refining petroleum. (Standard)

Bleaching clay (Corn.). Kaolin, used with size, to whiten and give weight and susbtance to cotton goods. (Raymond)

Bleaching powder. A powder for bleaching, as chloride of lime, or calcium oxychloride $CaOCl_2$. (Webster)

Bleb. A vesicle or bulla containing a serous fluid; a bubble as in water, glass, etc. (Webster)

Bleck. 1. (No. of Eng.) Pitch or tar upon ropes. (Gresley)
2. A black, fluid or semifluid substance, as blacking for leather, grease on an axle, etc. (Standard)

Bleed (Eng.) To give off water, or gas, as from coal or other stratum. (Gresley)

Bleeder. 1. An escape valve for gas at the top of a furnace or along the gas line, to relieve excess pressure or flow of gas. (Willcox)
2. A small cock or valve to draw off water of condensation from a range of piping. (Nat. Tube Co.)

Bleeding. The exudation of bituminous material on the roadway surface after construction. (Bacon)

Bleeding valve. A cock, as in an air brake mechanism, the opening of which releases air (Standard). *See also* Bleeder.

Bleiberg furnace. *See* Carinthian furnace.

Blenda (Mex.). Zincblende. (Dwight)

Blende. Without any qualification means zincblende or the sulphide of zinc, which has the luster and often the color of common resin, and yields a white streak and powder. The darker varieties are called blackjack by the English miners. Other minerals having this luster are also called blendes, as antimony blende, ruby blende, pitchblende, hornblende (Roy. Com.). It is often found in brown shining crystals, hence its name among the German miners, from the word *blenden* to dazzle.

Blick (Ger.). The brightening or iridescence appearing on silver or gold at the end of the cupelling or refining process. (Raymond)

Blikhuis (So. Afr.). A small house of galvanized iron erected on a gold field or in a diamond compound. (Standard)

Blind. 1. Not appearing in an outcrop at the surface; applied to mineral veins. (Webster)
2. (Forest of Dean.) *See* Afterdamp. 3. (Scot.). To erect a stopping in a crosscut or other underground roadway. (Gresley)

Blind coal (Eng.). 1. Coal altered by the heat of a trap dike so as to resemble anthracite. (Gresley)
2. Anthracite and other kinds of coal that burn without flame. (Power)

Blind creek (Aust.). A creek that is dry, except in wet weather. (Davies)

Blind drift. A horizontal passage, in a mine, not yet connected with the other workings (Ihlseng). *See also* Blind level.

Blinde. Same as Blende. (Standard)

Blinded (Scot.). Not opposite. Two ends (drifts or entries) driven from opposite sides of a plane and not opposite each other, but nearly so, are said to be blinded. (Barrowman)

Blind flange. A flange used to close the end of a pipe. It produces a blind end which is also called a dead end. (Nat. Tube Co.)

Blind joint. An obscure bedding plane. (C. and M. M. P.)

Blind lead; Blind lode. A vein having no outcrop. (Ihlseng)

Blind level. 1. A level not yet connected with other working. 2. A level for drainage, having a shaft at either end, and acting as an inverted siphon. (Raymond)

Blind lode. A lode showing no surface outcrop, and one that can not be found by any surface indications. *See also* Blind lead. (Skinner)

Blind-pit (Lanc.). *See* Drop-staple.

Blind road; Blind way (Mid.). Any underground roadway not in use, having stoppings placed across it. (Gresley)

Blind roaster. A muffle furnace. (Webster)

Blind seams. Incipient joints. (Rees)

Blind shaft. A shaft which does not open to daylight. A winze. *See also* Underground shaft.

Blind shearing (Scot.). A side cutting without under cutting. (Barrowman)

Blind stope (Local, U. S.). A secret working to remove ore. (Standard)

Blind vein. A vein that does not continue to the surface (Power). *See also* Blind, 1; Blind lode, Blind lead.

Blister. *See* Blister copper.

Blister copper. A high-grade crude copper in which nearly all the oxidizable impurities have been removed by slagging and volatilization. It contains from 97 to 99 per cent copper and only .25 to .75 per cent sulphur (Peters, p. 226).

Blistered copper ore. A reniform variety of chalcopyrite. (Power)

Blistering. *See* Secondary blasting.; *also* Mudcap.

Blister steel. Crude steel formed from wrought iron by cementation. So called from its blistered surfaces (Webster). *See also* Cement steel.

Bloat. A hammer swelled at the eye. (Raymond)

Block. 1. A division of a mine, usually bounded by workings but sometimes by survey lines or other arbitrary limits. (Webster)

Block-bond. A style of bricklaying in which the bricks are laid crosswise and lengthwise alternately. (Standard)

Block caving. A method of mining ore from the top down in successive layers of much greater thickness than characteristic of top slicing. Each block is undercut over the greater part of its bottom area and the supporting pillars blasted out. As the block caves and settles, the cover follows. The method might be considered as involving many of the features of top slicing combined with ore caving, but applied on a larger scale (Young). Also called "Caving system" and "Cumberland method of mining."

Block caving into chutes. *See.* Chute caving.

Block claim (Aust.). A square mining claim whose boundaries are marked out by posts. (Skinner)

Block coal. A peculiar kind of coal that breaks into large cubical blocks. It is used raw, or without coking, in the smelting of iron. Found in the Indiana coal field. (Century)

Block furnace. Same as Bloomery. (Century)

Block hole. 1. A small hole drilled in a block of rock either by hand drill or a portable air drill, to contain a small charge of explosive. 2. A relief hole, designed to remove part of the burden from a subsequent shot, used in coal mining. (Du Pont)
3. A quarryman's term for a method of breaking undesirably large blocks of stone by the discharge of dynamite in shallow holes. (Bowles)

Blockholer. A person whose duty it is to break up and reduce to safe and convenient size, by blasting or otherwise, any large blocks or pieces of rock that have been blown down by the miners. (Mesich v. Tamarack Mining Co., 184 Michigan, p. 366; 151 Northwestern, p. 563)

Blocking-out. 1. (Aust.). Laying or staking out gold-bearing gravel deposits in square blocks in order to facilitate systematic washing. 2. Exposing an ore body on three sides. (Skinner)

Block ore. A local term in Wisconsin for large cubical crystals of galena. (Power)

Block-reef (Aust.). A reef that shows frequent contractions and bulges. A wavy vein. (Power)

Block system of stoping and filling. *See* Overhand stoping.

Block tin. Commercial tin, cast into blocks, and partly refined. Solid tin as distinguished from tin plate. Also called Bar tin. (Webster)

Blocky. Breaking down in thick blocks. Applied to the roof of a mine working. (Steel)

Blond-metal (Staff.). A variety of clay ironstone of the coal-measures occurring near Wednesbury. (Century)

Blood poisoning. A morbid state of the blood caused by the introduction of poisonous or infective matter from without, or the absorption or retention of such as is produced in the body itself. (Webster)

Bloodstone. A variety of chalcedony or jaspar, dark green in color, interspersed with small red spots. Used as a gem. (U. S. Geol. Surv.)

Bloodwipe (Derb.). To draw blood, at a mine, by any act of violence that one man can inflict upon another. (Hooson)

Bloom. 1. A large steel bar, drawn from an ingot for further manufacture. 2. A rough bar of iron, drawn from a Catalan or bloomery ball, for further manufacture. *See also* Billet. (Raymond)
3. A mass of iron or steel formed by consolidating scrap at a high temperature by hammering or rolling. 4. A lump or mass of molten glass. 5. An earthy mineral that is frequently found as an efflorescence, as cobalt bloom. Also called Blossom. 6. To form an efflorescence, as salts with which alkali soils are impregnated bloom out on the surface of the earth in dry weather, after a rain or irrigation. 7. The fluorescence of petroleum. (Webster)

Bloomery; Bloomary. 1. A forge for making wrought-iron, usually direct from the ore. The sides are iron plates; the hair plate at the back, the cinder plate at the front, the tuyère plate (through which the tuyère passes) at one side (its upper part being called in some bloomeries the merrit plate) the fore-spar plate opposite the tuyère plate (its upper part being the skew plate) and the bottom plate at the bottom. (Raymond)
2. A machine for making blooms out of puddle-balls; an establishment containing such machines. (Standard)

Bloom hook. A tool for handling metal blooms. Also called bloom tongs. (Century)

Blooming. The process of manufacturing blooms of iron from the ore or from puddle balls. (Standard)

Blooming mill. 1. The first set of rolls in a rolling mill. 2. A bloomery. (Standard)

Blossom. The oxidized or decomposed outcrop of a vein or coal bed, more frequently the latter. Also called Bloom, Smut, and Tailing. *See also* Gossan. (Raymond)

Blossom of coal. *See* Coal smut, 1.

Blossom rock. The rock detached from a vein but which has not been transported. (Ihlseng)

Blout. A mass of quartz, often mineralized, that is frequently isolated and not connected with a vien. A contraction of Blow-out, 2.

Blow. 1. A single heat or operation of the Bessemer converter, also the quantity of metal operated upon.
2. (Aust.). A large mass of quartz or other gangue, isolated or forming a sudden enlargement on a lode. (Webster)
3. (Eng.). To blast with powder.
4. The escape of gas through a dam or stopping. 5. (York.). The breaking or falling of a mine roof. (Gresley)
6. (Aust.). The outcrop of the top of a vein (Standard). *See* Ironstone blow.

Blowdown (Eng.). To bring down coal or stone with explosives. (G. C. Greenwell)

Blowdown fan. A force fan. (C. and M. M. P.)

Blower. 1. A fan or other apparatus for forcing air into a furnace or mine. *See* Blowing engine. (Hanks)
2. A blowing out or forcible discharge of gas from a hole or fissure in a mine. (Webster)
3. (Eng.). A man who blasts or fires shots in a mine, or who drills the holes and charges them, ready for firing. (Gresley)
4. A foreman in charge of the operation of a blast furnace and stoves. At small plants in charge of trestle, stock house, and pig machine as well. (Willcox)

Blow-George (Eng.). A small centrifugal fan worked by hand, for mine ventilation. (Gresley)

Blowholes. 1. Minute craters formed on the surface of thick lava flows. (Daly)
2. A hole for the escape of gas or air. 3. A spot in a casting weakened by a bubble of air; an air hole. (Webster)

Blow-in. To put a blast furnace in operation. (Raymond) *See also* Blowing-in.

Blowing (Eng.). Blasting. (Bainbridge)

Blowing engine. An engine for forcing air into blast furnaces under pressure, often about one pound avoirdupois per square inch. (Weed)

Blowing fan. A rotary fan used to produce a blast. (Webster)

Blowing furnace. A furnace in which glassware is held to soften it when it becomes stiff in working. (Webster)

Blowing house (Eng.). An establishment in which blast furnaces are operated. (Ure). Specifically for smelting tin ore.

Blowing-in. The starting of a furnace which consists of warming the crucible, filling the furnace and heating the charge to the smelting point. (Hofman, p. 319)

Blowing on tap hole. Blowing air through the hole at casting, to clean the hearth of iron and cinder. (Willcox)

Blowing on the monkey. A flame blowing from the cinder notch of a blast furnace. (Willcox)

Blowing-out. *See* Blow-out, 1.

Blowing pipe. A glass-blower's pipe. (Century)

Blowing-pot. In pottery works, an apparatus for distributing color over the ware before burning. (Century)

Blowing road (So. Staff.). An intake, or fresh-air road in a mine. (Gresley)

Blowing tools. A small set of blasting implements (Standard). *Compare* Blasting supplies.

Blowing-up furnace. A furnace used for sintering ore and the volatilization of lead and zinc. (Hofman, p. 139)

Blown-out shot. A shot that has blown out the stemming without breaking any of the coal except that around the auger hole (Steel). *See also* Blow-out, 3.

Blow-off. 1. To let off excess of steam from a boiler. (C. and M. M. P.)
2. To blow out, by means of a special valve, the suspended and precipitated impurities collected in a steam boiler.

Blow-out. 1. To put a blast furnace out of blast, by ceasing to charge fresh materials, and continuing the blast until the contents of the furnace have been smelted. 2. A large outcrop, beneath which the vein is smaller, is called a blow-out. 3. A shot or blast is said to blow out when it goes off like a gun and does not shatter the rock (Raymond). A blown-out or windy shot.
4. A sudden or violent escape of gas, or air. 5. The cleaning of boiler flues by a blast of steam. (Webster)
6. The rupture of a boiler tube, steam pipe, pneumatic tire or other container through faulty construction, excessive pressure or other cause.

Blow-over. The excess of glass in making blown objects, projecting beyond the mold and afterward broken off. (Standard)

Blowpipe. A tube through which air is forced into a flame, to direct it and increase its intensity. In the compound blowpipe, two jets of gas (one of which may be air) are united at the point of combustion. (Raymond)

Blowpipe reaction. A decomposition of a compound when heated before the blowpipe, resulting in some characteristic reaction, as a coloring of the flame or a colored crust on a piece of charcoal (Standard). A useful method of analysis in mineralogy.

Blows (Leic.). Frequent and sudden risings of quicksand in sinking through water-bearing ground. (Gresley)

Blowtorch. A small automatic blast lamp or torch. (Webster)

Blowtube. A long wrought-iron tube, on the end of which the workman gathers a quantity of molten glass, and through which he blows to expand or shape it. (Webster)

Blowup. 1. (Eng.) An explosion of fire damp in a mine. 2. To allow atmospheric air access to certain places in coal mines, so as to generate heat, and ultimately to cause gob fires. (Gresley)

Blow wells (Eng.). A local term for Artesian wells, in the eastern coast of Lincolnshire, so called because the water often rushes up violently.

Blue. An assayer's term for a solution of copper sulphate. (Ricketts)

Blue asbestos. *See* Crocidolite.

Blue band. A bluish band of slate from one to four inches thick occurring 18 to 24 inches from the bottom of the No. 6 coal seam in Illinois.

Blue-billy (Eng.). The residuum of cupreous pyrites after roasting with salt. (Raymond)

Blue bind. Same as Bind, 1.

Bluecap. The characteristic blue halo or tip, of the flame of a safety lamp when fire damp is present in the air (Barrowman). *See also* Cap. 2.

Blue carbonate of copper. Same as Azurite.

Blue earth; Blue ground. *See* Kimberlite.

Blue elvan (Corn.). A synonym for Greenstone.

Blue ground. 1. (So. Afr.) A miner's name for the decomposed peridotite or kimberlite that carries the diamonds in the South African mines. (Kemp.)
2. (So. Staff.) Strata of the coal measures, consisting principally of beds of hard clay or shale. *See* Bind; *also* Bluestone, 2 (Gresley)

Blue iron earth. *See* Vivianite.

Blue ironstone. A synonym for Crocidolite (Chester). Blue asbestos.

Bluejack. Blue vitriol; copper sulphate (Webster). *See also* Chalcanthite.

Blue-john. A beautiful fibrous or columnar variety of fluorspar found in Derbyshire, England. Used for making ornaments. (Webster)

Blue lead. (Pronounced like the verb to lead.) The bluish auriferous gravel and cement deposit found in the ancient river-channels of California. (Raymond)

Blue lead-ore. An old name for a compact variety of galenite of a bluish-gray color. (Chester)

Blue malachite. Same as Azurite. (Standard)

Blue metal. 1. A copper matte containing about 60 per cent copper. (Webster)
2. (No. of Eng.). *See* Bind. 1; *also* Bluestone, 2.

Blue ocher. Same as Vivianite.

Blue oil. 1. A mixture of heavy oils and paraffin, obtained in the distillation of ozocerite. (Webster)
2. The oil produced from the heavy oil and paraffin of the Scotish shales by cooling and pressing for separation of hard paraffin scale; it is refined and fractionated into lubricating oils. (Bacon)

Blue opal. A synonym for Lazulite. (Chester)

Blue peach (Corn.). A slate-blue, very fine grained tourmaline. (Raymond)

Blue powder. That portion of vaporized zinc which does not condense as a liquid, but passes directly to the solid state in finely divided bluish powder. (Ingalls, p. 205; Hofman, p. 500)

Blue print. A blue photograph. *See also* Cyanotype. (Webster)

Blue room. The first room in a bag house. (Hofman, p. 131)

Blue schorl. 1. The earliest name for octahedrite. (Chester)
2. Blue tourmaline.

Blue-sky law. A law enacted to provide for the regulation and supervision of investment companies, in order to protect the public against companies that do not intend to do a fair and honest business.

Blue spar. Lazulite; azure-spar. (Century)

Bluestone. 1. The commercial name for a dark bluish-gray feldspathic sandstone or arkose. The color is due to the presence of fine black and dark-green minerals, chiefly hornblende and chlorite. The rock is extensively quarried in New York. Its toughness, due to slight metamorphism, and the ease with which it may be split into thin slabs especially adapt it for use as flagstone. The term has been locally applied to other rocks, among which are dark-blue slate and blue limestone. (U. S. Geol. Surv.)
2. (So. Wales). Hard clay or shale. *See also* Bind. (Gresley)
3. Copper-vitrol; copper-sulphate. (Raymond)

Blue talc. A synonym for Cyanite. (Chester)

Blue verditer. *See* Verditer, 2 and 3.

Blue vitrol. Copper sulphate; chalcanthite. Also called Copper vitriol.

Bluff. 1. A high bank, presenting a precipitous front to the sea or a river. 2. Blunt. 3. A fictitious show of strength. (Webster)
4. Altered country rock filling a lode. Analogous to mullock of Australia. (Halse)

Bluft (Leic.). To extinguish, or put out of sight, a candle or other light. (Gresley)

Bluing, or Blueing. The act or operation of giving a blue tint to iron or steel, as by heating, by the use of solutions, or by a combination of both processes; also, the tint so given. (Standard)

Blunge. In ceramics, to mix (clay) with water by means of a blunger or in a pug mill. (Standard)

Blunger. A wooden implement shaped like a spatula, but larger than a shovel, used in mixing clay with water. (Standard)

Bluntin (Derb.). A dark tough vein filling which dulls the drills readily. (Hooson)

Boam (Scot.). *See* Boom, 1.

Board. *See* Bord.

Board-and-pillar. Same as Pillar-and-breast.

Board-and-wall. Same as Bord-and-pillar, and Pillar-and-breast.

Board coal (Eng.). Coal having a fibrous or woody appearance. (Gresley)

Board run. The amount of undercutting that can be done at one setting of a coal-mining machine, usually about 5 feet, without moving for-

ward the board upon which the machine works. (Consolidated Coal Co. *v.* Gruber, 188 Illinois, p. 589)

Boart. Same as bort. (Century)

Boasting. The rough dressing of stone with a boasting chisel. (Standard)

Boasting-chisel. A flat chisel with an edge 2 inches wide, used in dressing stone. (Standard)

Boat. A gold dredge.

Boat coal (Penn.). Coal which is loaded into boats on canals, rivers, etc. (Gresley)

Boat level (Wales). A navigable adit. (Raymond)

Bob; Balance bob; Pump bob; Rocking bob. 1. A triangular or four-sided frame of heavy timber or of iron by which the horizontal motion communicated by the engine (connecting rod) is altered to the inclined or vertical motion of pump rods or of a man-engine (Chance). Used in connection with a Cornish pump.

Bobbin. 1. (Aust.) A catch placed between the rails of the up-line of an incline to stop any runaway trucks. It consists of a bent iron bar, pivoted in such a manner so that the down-hill end is slightly heavier than the up-hill end, which is capable of being depressed by an up-coming truck, but rises above the level of the truck axle as soon as the truck is past (Power). Also called Monkey-chock.
2. A spool or reel. (Webster)

Bobbing John (Scot.). An appliance formerly used in pumping, the motive power being water run into a box at the end of a beam working on a center, the pump rods being attached to the other end. (Barrowman)

Bob-pit. An excavation in which the balance box, attached to the pump-rods, works. (Duryee)

Boca (Mex.). Mouth of mine or tunnel, especially the place generally used as an entrance; head of a stull or post; heavy horizontal brace; *B. de barrena*, the bit of a drill. (Dwight)

Bocarte (Mex.). A stamp battery. (Dwight)

Bocartear (Sp.). To crush, stamp or grind ore. (Halse)

Bocazo (Sp.). A blown-out shot. (Halse)

Bocca. 1. The round hole in a glass furnace by which the fused glass is taken out. (Duryee)
2. A volcanic crater or vent. (Standard)

Boccarella (It.). A small mouth in a glass furnace on either side of the *bocca;* a nose hole. (Standard)

Bochorno (Mex.). Excessive heat with lack of ventilation. (Dwight)

Bodies seven. In alchemy, the metals corresponding to the planets, being gold, silver, iron, quicksilver, lead, tin, and copper, answering respectively to the sun, the moon, Mars. Mercury, Saturn, Jupiter, and Venus. (Standard)

Body. 1. A kind or form of matter; a material substance. (Webster) 2. An orebody, or pocket of mineral deposit. 3. The thickness of a lubricating oil or other liquid; also the measure of that thickness expressed in the number of seconds in which a given quantity of the oil at a given temperature flows through an aperture. (C. and M. M. P.)

Body of coal. A term frequently used to indicate the "fatty," inflammable property in coal, which is the basis of the phenomenon called combustion. (Nicolls)

Boetius furnace. An early gas-fired Belgian furnace with Boetius regenerators. (Ingalls, p. 448)

Boetius producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 304.)

Bog (Celtic for soft). A wet spongy morass, chiefly composed of decayed vegetal matter. (Power)

Bogar (Chile). In metallurgy, to skim. (Halse)

Bog butter. A fatty substance similar to adipocire found in the peat bogs of Ireland (Webster). *See also* Butyrellite.

Bog earth. A soil composed for the most part of the fine siliceous matter and partially decomposed vegetal fiber. (Webster)

Boghead cannel. *See* Torbanite.

Boghead coal (Scot.). A dark brown variety of cannel coal valuable as a source of paraffin oils and gas (Webster). *See also* Torbanite.

Boghead mineral. *See* Boghead coal; Torbanite.

Bogie; Bogey; Bogy. 1. (York.) A small truck or trolley upon which a bucket is carried from the shaft to the spoil bank. 2. A weighted truck run foremost or next to the rope in a train or trip. (Gresley)

Bogie engine. A switching engine, the running gear and driving gear of which are on a bogie or truck. (Webster)

Bog iron ore. A spongy variety of hydrated oxide of iron or limonite. Found in layers and lumps on level sandy soils which have been covered with swamp or bog (Roy. Com.). *See also* Brown iron ore.

Bog lime. A white powdery, calcareous deposit, precipitated through plant action on the bottom of many ponds and used in Portland cement manufacture. It is often erroneously called marl, a term which properly belongs to a calcareous clay. (Watson)

Bog manganese. A synonym for Wad.

Bog ore. 1. An iron hydroxide ore, as limonite, from marshy places. 2. Bog manganese. (Standard)

Bogwood (Eng.). The trunks and larger branches of trees dug up from peat bogs. (Page)

Bohemian garnet. *See* Pyrope.

Bohemian glass. An ornamental glass from Bohemia, noted for its rich colors and incised or engraved patterns. (Webster)

Bohemian ruby. A jeweler's name for rose quartz when cut as a gem. (Chester)

Bohemian topaz. A jeweler's name for yellow quartz when cut as a gem. (Chester)

Boil. The sudden generation of steam when molten iron runs over a cold or damp spot or object in runner. It often causes an explosion, whereby molten iron is scattered about. (Willcox)

Boiler. A closed vessel, usually cylindrical, used in generating steam, as for motive power: ordinarily made of riveted iron or steel plates, arranged to give an enlarged heating surface, with a space below for the fire, and often with internal flues for the smoke, etc. (Standard)

Boiler iron. Rolled sheet iron, such as is used in making steam boilers, varying in thickness from a quarter to half an inch, and in tensile strength from 40,000 pounds per square inch upward. (Standard)

Boiler scaler. A man who cleans scales from boiler tubing. (Willcox)

Boiler tube. One of the tubes by which heat from the furnace is diffused through the water in a steam boiler. (Nat. Tube Co.)

Boilery; Boilary. In law, water proceeding from a salt well belonging to one not the owner of the land. (Standard)

Boiling. 1. Heated to the point of bubbling; heaving with bubbles. 2. In metallurgy, *See* Puddling. (Webster)

Boiling furnace. A water-jacket reverberatory furnace for decarbonizing iron by a process in which the carbonic oxide escapes with an appearance of boiling. (Standard)

Boiling heat. *See* Boiling point.

Boiling point. 1. The temperature at which a liquid begins to boil, or to be converted into vapor by bubbles forming within its mass. It varies with the pressure. In water, under ordinary conditions, it is 212° F. or 100° C., but it becomes less with lessened atmospheric pressure, as in ascending a mountain being lowered about 1° F. for every 550 feet of ascent. (Standard)
2. The temperature at which crude oil on being heated begins to give forth its different distillates. The boiling point of crude oils and the amounts of distillates obtained at specified temperatures differ considerably. (Mitzakis)

Boiling spring. A spring or fountain which gives out water at the boiling point, or at a high temperature. (Century)

Boina (Mex.). A miner's cap. (Dwight)

Bojite. A name given by E. Weinschenk to a variety of gabbro, which occurs in association with the graphite of northern Bavaria. It differs from normal gabbro in containing hornblende, in addition to augite, and the name is intended to indicate a group of hornblendic gabbros just as norite implies those with hypersthene. The original bojite contained brown hornblende, colorless pyroxene, and reddish brown biotite. (Kemp)

Boke. 1. (Derb.). A small stringer of ore which soon dwindles out. (Hooson)
2. (Derb.). A break or split in a vein. Mander)

Bola (Sp.). A ball; *B. de grasa,* a slag-ball. (Halse)

Bolas. 1. (Mex.). More or less rounded masses of silver-gold ore. 2. (Sp.). Fine mercury ore molded into bricks. 3. Spherulites. 4. Balls of clay used in tamping. (Halse)

Bolderberg beds (Belg.). The sands and gravels of the Bolderberg hill, representatives of the Middle or Eocene Tertiaries, and often referred to by geologists. (Page)

Bole. 1. (Derb.). An old lead works. A place on high ground and exposed to the wind, where smelting has been carried on. (Hunt)
2. A friable earthy clay highly colored by iron oxide. 3. An old Scotch measure of about 4 bushels. *See also* Boll. (Webster)

Boleite. A deep blue pseudo-isometric hydrous oxychloride of lead, copper, and silver from Boleo, Lower California. A tetragonal form of percylite. (Dana)

Boleo (Mex.). 1. A dump for waste rock. 2. Float-mineral. 3. A kidney of ore. (Dwight)

Boleta (Sp.). 1. A schedule. 2. A ticket for the sale of ore. 3. A voucher. 4. A tax receipt. (Halse)

Bolichar (Mex.). To treat ore in a *bimbalete.* (Halse)

Boliche. 1. (Peru). A dolly-tub. 2. (Mex.). A small ore mill like a *bimbalete.* (Dwight)
3. In Spain, a small reverberatory furnace for smelting lead ores. (Halse)

Bolivar (Venezuela). A silver coin equal to 1 franc, 9½d., or 19.3 cents. (Lock)

Boll. 1. (No. of Eng.). An ancient measure for coal, containing 9676.8 cubic inches. (Gresley)
2. *See* Bole, 3.

Bollito (It.). The frit or calcined ingredients from which glass is made. (Standard)

Bollo (Peru). 1. A pocket or ore. 2. A triangular block of amalgam. (Dwight)

Bologna spar. *See* Bolognian stone.

Bolognian stone. A sulphate of barium occurring in roundish masses and which is phosphorescent after calcination (Ure.) Also called Bologna stone, Bologna spar.

Bolsa (Peru). A rich body of ore; literally a purse. (Pfordte)

Bolsada (Sp.). A rich pocket of ore. In a general sense, an irregular deposit. (Halse)

Bolsilla (Sp.). A small pocket of ore. (Halse)

Bolsón. 1. (Sp.). A flat-floored desert valley that drains to a central evaporation pan or *playa.* (Ransome).
2. (Mex.). A pocket of ore. (Dwight)

Bolsonada (Peru). A pockety vein. (Dwight)

Bolt. 1. A nearly horizontal cylinder or prismoidal frame, usually, rotating, covered with silk or other fabric with very regular meshes, for sifting and separating flour of wheat from the hull or bran. Usually different sections of its length are covered with gradually decreasing sizes of mesh. Used in the talc and fuller's earth industries, etc. 2. To sift or separate by passing through a bolt. (Standard)
3. (So. Staff.). A short, narrow heading, connecting two others. Also called Bolt hole. (Gresley)
4. In glass-blowing, a cylindrical mass; as a bolt of melted glass. (Standard)

Bolt hole (So. Staff.). A short narrow opening made to connect the main workings with the air head or ventilating drift of a coal mine (Century). Also called Bolt.

Bolt oil. A viscous neutral oil having a gravity of 30° Bé. and a Saybolt viscosity of 220. Used in cutting nut and bolt threads. (Bacon)

Boltonite. A colored variety of forsterite, Mg_2SiO_4, crystallizing in the orthorhombic system. (Dana)

Bomb. 1. In geology, a more or less rounded mass of lava, anywhere from a few inches to several feet in diameter, generally vesicular, at least inside, thrown from the throat of a volcano during an explosive eruption. (La Forge)
2. The combustion chamber of a calorimeter fitted for use in making explosive combustions. 3. A missile containing an explosive, as dynamite. (Webster)

Bomba (Sp.). 1. A pump. 2. (Venez.). A patch or pocket of ore. 3. A volcanic bomb. (Halse)

Bombear. 1. (Colom.) To bring a large volume of water to the channel or ground sluice. 2. To discharge a miner or peón. (Halse)

Bombiccite. A transparent, colorless mineral, found in lignite in Tuscany; it fuses at 75° C., volatilizes at a higher temperature, and is soluble in carbon disulphide. alcohol and ether. (Bacon)

Bombillo (Mex.). Cartridge (as of dynamite). (Dwight)

Bonanza (Sp.). Literally, fair weather. In miners' phrase, good luck, or a body of rich ore. A mine is in *bonanza* when it is profitably producing ore (Raymond). *Compare* Borrasca.

Bond. 1. (No. of Eng.) Agreement for hiring workmen. 2. (Forest of Dean.) A turn made by a winding engine. 3. (No. Staff.). A bed, band, or seam of ironstone. (Gresley)
4. The arrangement of blocks of stone or brickwork to form a firm structure by a judicious overlapping of each other so as to break joint. (C. and M. M. P.)
5. An electrical connection between any two consecutive rails of an electric railway using the rails as a part of the return circuit. 6. A unit of chemical attraction. *See* Valence.
7. To give or secure an option upon a mine or other property by a bond tying up the property until the option has expired. (Webster)
8. The material which holds or binds together the crystals which make up a sharpening stone or grinding wheel, more commonly spoken of in connection with artificial abrasives. (Pike)
9. A certificate of ownership in a definite portion of a debt due from a government, a city, a business corporation, or an individual. In its simplest form it is a promise to pay a stipulated sum on or after a given date, and to pay interest or dividends at a specified rate and at definite intervals. (E. B. Skinner, p. 127)

Bonder. In masonry, a stone or brick extending through a wall and binding it together; a binding-stone. Also called Bondstone. (Standard)

Bondminder; Rolleyman; Roadman (Eng.). A man in charge of the rolley way, or main gangway. (Redmayne)

Bondstone. Same as Bonder.

Bone; Bone coal; Bony. Slaty or argillaceous coal, or carbonaceous shale occurring in coal seams (Chance)

Bone ash. The white porous residue from calcined bones, composed chiefly of calcium phosphate, used for making cupels and for cleaning jewelry (Webster). Called also Bone earth.

Bone bed (Eng.). A term applied to several thin strata or layers, from their containing innumerable fragments of fossil bones, scales, teeth, coprolites, and other organic remains (Page). *See also* Fish bed.

Bone black. The black, carbonaceous substance into which bones are converted by calcination in closed vessels; also called Animal black or Charcoal. (Webster)

Bone breccia. A deposit of bones, earth, sand, etc. (Webster)

Bone coal. *See* Bone.

Bone earth (Eng.). The earthy or mineral part of bones, which consists chiefly of calcium phosphate. (Page)

Bone phosphate. The calcium phosphate obtained from bones; also, in commerce, applied to calcium phosphate obtained from phosphatic rocks, as of North Carolina. (Standard)

Bone porcelain. A ceramic ware having bone dust as one of its constituents. (Standard)

Bonete (Mex.). A hat used to catch very rich ore as it is picked down with a sharp bar. (Dwight)

Bongkal (Straits Set.). A gold weight equals 832.84 gr.; 20 bongkals equals 1 catty. (Lock)

Bongo (Colom.). A wooden box in which the sand from the mill is deposited for subsequent treatment. (Halse)

Boninite. A glassy phase of andesite with bronzite, augite, and a little olivine, from the Bonin Islands, Japan. (Kemp)

Bonito (Mex.). First-class silver ore, *i. e.*, assaying over 1,000 oz. per ton. (Dwight)

Bonnet. 1. A covering over a mine cage to shield it from objects falling down the shaft. (Raymond)
2. A cover for the gauze of a safety lamp. (Steel)

3. A cap-piece for an upright timber. (C. and M. M. P.)
4. (Corn.). The cover of the steam chest of an engine. (Crofutt)
5. *See* Bell mold. (Gresley)
6. (Scot.). Gas coal or shale overlying and worked along with a coal seam. **7.** (Scot.). A portion of a coal seam left for a roof. (Barrowman)

Bonnet roller; Bonnet pulley; Bonnet sheaf (Eng.). *See* Hat roller.

Bonney (Corn.). An isolated body of ore (Raymond). *See also* Bonny.

Bonny; Bonney; Bunny (Corn.). A mass of ore adjacent to a vein, but not distinctly connected with it; a great collection of ore without any vein coming into or going from it. (Century)

Bont (Eng.). **1.** The cage and winding rope with attachments. (Gresley)
2. (Derb.). A narrowing of a mineral vein. (Hooson)

Bontle (Mid.). A hoisting cage full of men. (Gresley)

Bony coal. *See* Bone.

Boobey (Som.). A box holding 6 to 8 cwt. of coal in which waste rock is sent to the surface. (Gresley)

Book clay; Leaf clay. Clay deposited in thin leaf-like laminae. (Power)

Bookstone. *See* Bibliolite.

Book structure. A peculiar rock structure resulting from numerous parallel sheets of slate alternating with quartz. (Lindgren, p. 154)

Book tiles. Flat, hollow shapes, having two segmental edges and resembling a book in section. (Ries)

Boolies (No. of Eng.). A collier's term for brothers. (Gresley)

Boom. **1.** A long spar or beam projecting from the lower end of the mast of a derrick, to support or guide the body to be lifted or swung. **2.** To develop rapidly in resource and population. **3.** To cause a rapid increase in favor or price, as to boom a stock. (Webster)

Boom ditch. **1.** The ditch from the dam used in booming. **2.** A slight channel cut down a declivity into which is let a sudden head of water to cut to bed-rock and prospect from the apex of any underlying lode. (Miller)

Boomer. *See* Flop gate.

Booming. The accumulation and sudden discharge of a quantity of water (in placer mining, where water is scarce). *See* Hushing (Raymond). In California the contrivances for collecting and discharging water are termed "self-shooters," an idea suggested by the sudden and violent manner in which the water makes its escape. (Hanks)

Boose (Derb.). Gangue rock mixed with ore. *See also* Bouse.

Booster. A small amount of high explosive attached to a detonator for the purpose of increasing the rate of detonation of a charge. (Bowles)

Booster-fan. An additional fan placed at some point in a mine to assist in the ventilation.

Boot. **1.** A leather or tin joint connecting the blast-main with the tuyère or nozzle in a bloomery. (Raymond)
2. (Eng.) A short pipe of leather through which the water is drawn from a sump into a sinking pump. (Gresley)
3. The casing at the lower end of a bucket elevator into which the material to be elevated is fed.

Bootit (Derb.). A term used by miners for loss, as "last reckoning I *bootit* it thirty." (Hunt)

Boot-leg. *See* Gun.

Boracite. A borate and chloride of magnesium, $Mg_7Cl_2B_{16}O_{30}$, occurring in hard glassy crystals, and in softer white masses. It is strongly pyroelectric. (Webster)

Boratera (Chile). A borax deposit. (Halse)

Borax. A crystalline sodium biborate. $Na_2B_4O_7.10H_2O$. *See also* Tincal. (Dana)

Borax bead. A drop of borax, in blowpipe analysis, which, fused with a small quantity of a metallic oxide, will show the characteristic color of the element; as, a blue borax bead indicates the presence of cobalt. (Standard)

Borcher's process. An electrolytic method for refining silver. The anode consists of granulated alloys containing about 60 per cent pure silver. The cathode of sheet silver is suspended in a cell with perforated double walls on each side. The electrolyte is dilute nitric acid or a solution of nitrates, preferably copper nitrate. (Goesel)

Bord (Newc.). 1. A passage or breast, driven up the slope of the coal from the gangway, and hence across the grain of the coal (Raymond). A bord four or more yards wide is called a wide bord, and one less than four yards in width is called a narrow bord. Also spelled Board. 2. A lateral passage at the place where a shaft intersects a coal seam. (Standard)

Bord and pillar method. A system of mining in which the distinguishing feature is the winning of less than 50 per cent. of coal on the first working. It is more an extension of the development work than mining. The second working is similar in principle to top slicing. The remainder of the coal is won by a retreating system, the cover being caved after each unit has been worked. The term "bord and pillar" is not used to any great extent in American mining literature, but has a place in English literature (Young). Various names have been applied to this method as: Checkerboard system; Brown panel system; Following up the whole with the broken; Lancashire bord and pillar system; Modified room and pillar working; Narrow working; North Staffordshire method; Rearer method of working inclined seams; Rock-chute mining; Room system; Room system with caving; Warwickshire method of working contiguous seams; Wide or square work; and Pillar and breast.

Bord course (Aust.). A direction at right angles to the main cleat or facing, *i. e.*, the length of a bord. (Power)

Bordeta (Sp.). A small pillar in a mine. (Crofutt)

Bord gate (York.). A heading driven generally to the rise, out of which stalls are opened and worked. (Gresley)

Bordo (Mex.). 1. A pillar left to support vein-matter. 2. A block of ground ready for stoping. (Dwight)

Bord room. 1. A heading driven parallel to the natural joints. (Gresley)
2. The space excavated in driving a bord. The term is used in connection with the "ridding" of the fallen stone in old bords when driving roads across them in pillar working; thus, "riding across the old bord room." (C. and M. M. P.)
3. (Eng.). The width across an old bord. (Bainbridge)

Bords and longwork (York.). A system of working coal. First, the main levels are started on both sides of the shaft and carried toward the boundary. Second, the bord gates are worked in pairs to the rise and continued as far as the boundary, or to within a short distance of a range of upper levels and other bord gates. Lastly, the whole of the pillars and remaining coal are worked out downhill to within a few yards of the levels, and ultimately, all the coal between the levels is removed. (Gresley)

Bord ways course. The direction at right angles to the main cleavage planes. In some mining districts it is termed "on face." (C. and M. M. P.)

Bore. 1. To make a hole or perforation with a boring instrument; to cut a circular hole by the rotary motion of a tool, as to bore for water, oil, etc. 2. A hole made by boring. *See* Borehole. 3. A tidal flood which regularly or occasionally rushes with a roaring noise into certain rivers of peculiar configuration or location, in one or more waves which present a very abrupt front of considerable height, dangerous to shipping. Also a very high and rapid tidal flow. (Webster)
4. A borehole; also, a tunnel, especially during its construction. (Standard)

Borebit. A rock boring chisel. (Standard)

Borehole. A hole made with a drill, auger or other tools, for exploring strata in search of minerals, for water supply, for blasting purposes, for proving the position of old workings, faults, and letting off accumulations of gas or of water (Gresley). *See also* Oil well.

Bore-hole pump. A pump for use in a bored well. (Standard)

Bore meal (Eng.). Mud or fine cuttings from a borehole. (Gresley)

Borer. 1. An instrument for boring. (Webster)
2. (Eng.). A piece of round iron with a steel point, which is driven into the rock to make holes for the purpose of blasting (Hunt). *See also* Drill.

Bore-rod (Newc.). *See* Boring rod.

Borgnet furnace. A Belgian zinc distillation furnace with a single combustion chamber. (Ingalls, p. 432)

Boring. 1. The act or process of making a hole with a boring tool. 2. A hole so made. 3. Material removed by boring. (Standard)

Boring bar. A revolving or stationary bar carrying one or more cutters or drills for boring.

Boring bit (Derb.). A sharp piece of steel at the end of an auger stem or drill for cutting rock or other material (Min. Jour.). *See* Bit, 1 and 2.

Boring contract. An agreement entered into between a producer and a contractor for the sinking of oil or gas wells on a property. (Mitzakis)

Boring head. The cutting end of a boring tool, especially the cutter head of a diamond drill. (Webster)

Boring journal. A book which contains an accurate record of the progress of the boring work, day by day. It is usually kept by the drilling master (Mitzakis). *See also* Log, 3.

Boring master. A man in charge of a well-boring outfit.

Boring rod. A rod made up of segments, carrying at its lower end a tool for earth boring or rock drilling. (Webster)

Borneador (Sp.). A man who turns a drill. (Halse)

Bornear. (Sp.). To turn a drill. (Halse)

Bornita (Mex.). Bornite. (Dwight)

Bornite; Erubescite; Peacock copper ore. A sulphide of copper and iron, Cu_3FeS_3. Contains 62 per cent copper (U. S. Geol. Surv.). Called also Horseflesh ore.

Borolanite. A rare rock related to the nephelite-syenites from Borolan, Sutherlandshire, Scotland. It has a granitoid texture, and consists principally of orthoclase and the variety of garnet called melanite. Biotite, pyroxene, sodalite, titanite, apatite and magnetite are accessory minerals. (Kemp)

Boron. A nonmetallic element occurring only in combination. May be obtained with difficulty as an olive-green, brown or reddish amorphous mass from its oxide. or as octahedral crystals resembling the diamond in hardness and other properties by heating the amorphous boron with aluminum. Symbol, B; atomic weight, 11.0; Specific gravity, 2.45.

Boronatrocalcite. *See* Ulexite.

Borra (Mex.). 1. Vein-matter. 2. Lead-dross. 3. Barren vein-matter or rock; *B. de veta*, soft rotten rock; *B. en borra*, unproductive ground. (Dwight)

Borrasca (Sp.). In mining, barren rock or non-paying ore: opposed to bonanza. Also spelled *Borasco; Bourasque* (Standard). An unproductive mine.

Borrow pit. An excavation made by the removal of earth, rock, etc., for use in filling, as in railroad construction.

Borsella. An instrument for stretching or contracting glass in its manufacture. (Standard)

Bort. 1. An impure variety of diamond (also chips and dust), used only for cutting and polishing. 2. Carbonado or black diamonds. (Standard)

Bosado (Colom.). Alluvial gold. (Halse)

Bosh. 1. A trough in which bloomery tools (or, in copper smelting, hot ingots) are cooled. 2. The portion of a shaft furnace in which it widens from above the hearth up to its maximum diameter. (Raymond) 3. (Wales). A tank or tub out of which horses drink. (Gresley)

Bosh breakouts. Breakouts of the blast, gas, or coke through the bosh brickwork of an iron blast furnace. (Willcox)

Bosh jacket. A water jacket used for cooling the walls of a shaft furnace.

Bosh plates. A flat water-cooled casting extending from inside to outside face of furnace walls to keep them from being softened by heat. (Willcox)

Bosque (Mex.). A forest; a grove. (Dwight)

Boss. 1. A person in immediate charge of a piece of work, as mine foreman. 2. (Ark.). A coal mine employee not under the jurisdiction of the miner's union. (Steel) 3. A master workman or superintendent, a director or manager; a political dictator. 4. A domelike mass of igneous rock congealed beneath the surface and laid bare by erosion. 5. The enlarged part of a shaft on which a wheel is keyed, or at the end where it is coupled to another. 6. A cast-iron plate

secured to the back of a traveling forge hearth. 7. A swage or die for shaping metals. (Webster)
8. A heavy cylindrical piece of iron (usually cast or steel) into the top of which the stamp stem fits and into the bottom of which the shoe is inserted. It is the body of the hammer into which the handle fits and which also gives heft to the blow. Also called Top head. (Rickard)
9. (Scot.). Hollow. The waste or exhausted workings of any mineral. To hole or undercut. (Barrowman)
10. A cushion or pad, as of soft leather or silk, used for smoothing or making uniform the colors applied with oil in porcelain and glass making. (Webster)

Boss driver. One in charge of men or boys who are driving horses or mules for hauling coal, rock, or ore at mines.

Bossing. 1. (Scot.). The holing or undercutting of a thick seam, as of limestone, the height of the undercutting being sufficient for a man to work in. (Barrowman)
2. In ceramics, the process of making a coat of color uniform, by dusting the color on boiled oil, or applying it plentifully mixed with oil, and tapping to smoothness with a boss or pad; ground-laying. *See* Boss, 10. 3. A coating of oil to be employed as above. (Standard)

Boss miner. 1. A contract miner. 2. In Ohio, 1883, a mine boss. (Roy)

Boss process. A continuous pan-amalgamation process for silver extraction. (Liddell)

Bostonite. A rock occurring in dikes, and having the mineralogical and chemical composition of trachyte or porphyry, except that anorthoclase (and therefore soda) is abnormally abundant, and dark silicates are few or lacking. The name was suggested by its supposed presence near Boston, Mass., but Marblehead, 20 miles or more distant, is its nearest locality. It has been found around Lake Champlain and in the neighboring parts of Canada. (Kemp)

Bota (Mex.). 1. A bucket made of one or more ox skins, to take out water. (Dwight)
2. *B. chica*, a small leather bag; *B. grande*, a large leather bag, worked by horse whims, for hoisting water. (Min Jour.)

Botch. A worthless opal. (Power)

Bote (Mex.). 1. A boat. 2. A can. 3. An ore bucket. (Dwight)

Botryogen. A vitreous hyacinth-red, translucent, hydrous magnesium ferro-ferric sulphate, crystallizing in the monoclinic system. (Dana)

Botryoidal. Having the form of a bunch of grapes (Webster). Said usually of minerals.

Botryolite. A radiated, columnar datolite with a botryoidal surface. (Standard)

Bott. 1. A plug of clay at the end of a bar, to stop the flow of melted metal from a cupola. (Standard)
2. A cast-iron or forged-steel plug mounted on long steel rod that fits inside of the cinder tap (Willcox). A blast furnace term.

Botting. Thrusting a bot into the tap hole to stop a run of slag or metal. (Willcox)

Bottle coal (Scot.). Gas coal. (Barrowman)

Bottle jack (Eng.). An appliance for raising heavy weights in a mine. (Gresley)

Bottle stone. An old name for chrysolite, or any other mineral, which can be melted directly into glass (Chester). *See also* Bouteillenstein.

Bottom. 1. The landing at the bottom of the shaft or slope. 2. The lowest point of mining operations. 3. The floor, bottom rock, or stratum underlying a coal bed. (McNeil)
4. Low land formed by alluvial deposits along a river. 5. (Aust.). The dry bed of a river of Tertiary age, containing alluvial gold, often covered to a great depth by volcanic matter or detritus. Also called Gutter. 6. To underrun with a level for drainage, etc., as a gold deposit which is to be worked by the hydraulic method. (Webster)
7. To break the material and throw it clear from the bottom or toe of the bore hole. (Du Pont)
8. A mass of impure copper formed below the matte, in matting copper ores (Weed). *See also* Bottoms, 2.

Bottom board (Eng.). The bottom of a wagon or truck which is unfastened by knocking off a catch when the wagon is required to be discharged. (G. C. Greenwell)

Bottom break. Same as Floor break. (Bowles)

Bottom cager. A man at the bottom of a shaft in a mine to superintend the operation of the raising and lowering of the cage. (Illinois Third Vein Coal Co. v. Cioni, 215 Illinois, p. 583.) *See also* Cager.

Bottom canch. *See* Canch, 2.

Bottom coal. Coal below the undercut. It may or may not be removed.

Bottom digger. A workman who digs out the bottom in an entry in thin coal, to give sufficient height for the haulage way.

Bottomer (Eng.). The man stationed at the bottom of a shaft in charge of the proper loading of cages, signals for hoisting of cages, etc. A cage or skip tender (Raymond). Also called Bottom cager.

Bottom filler. A man who fills a barrow with ore, coke, or stone, weighs it and places it on the cage, or elevator to be hoisted to top of the furnace. (Willcox)

Bottom ice. Ground ice; anchor ice. (Century)

Bottoming. 1. The ballasting material for making a roadbed; ballast. 2. The act of fitting with a bottom or performing some basal operation. (Standard)

Bottoming hole. The opening at the mouth of a furnace, before which a flint glass article, in process of manufacture, is exposed for softening. (Standard)

Bottom joint. A joint or bedding plane, horizontal or nearly so. (C. and M. M. P.)

Bottom lift. The deepest lift of a mining pump, or the lowest pump. (Raymond)

Bottom lifter. One who digs up the bottom of a drift, entry, or other haulage way to gain head room; also called Brusher; Dirt scratcher; Groundman; Ripper, and Stoneman.

Bottom pillars. Large blocks of solid coal left unworked around the shaft. *See also* Shaft pillar. (Gresley)

Bottom plate. A plate supporting a mold. (Webster)

Bottoms. 1. (Corn.) The deepest mine workings. 2. In copper smelting, the impure metallic copper, or cupriferous alloy, which separates from the matte, and is found below it, when there is not enough sulphur present to retain in combination all the copper. (Raymond)

Bottom-set beds. The layers of finer material carried out and deposited on the bottom of the sea or a lake in front of a delta. As the delta grows forward they are covered by the fore-set beds (La Forge). *See* Fore-set beds and Top-set beds.

Bottom settlings. Earthy matter, inert organic matter, or, in the case of Pennsylvania petroleum, an emulsion of amorphous paraffin wax and water, which accompanies crude oil. (Bacon)

Bottom stewards (York). Underground mine officials. (Gresley)

Bottom stone. *See* Fire clay.

Bottom water. In oil wells, water that lies below the productive sand, and is separated from it. *Compare* Top water; Edge water. (U. S. Geol. Surv. Bull. 658, p. 44.)

Bouchardе (Fr.). A marble-workers tool with which the surface of marble may be roughened or furrowed. (Standard)

Bougard marble. A dark-gray and white mottled stone with streaks and clouds of yellow, brown, and pink; from Nassau, Germany. (Merrill)

Bouking (Scot.). 1. Segments of wood or other material used for increasing the diameter of a drum. 2. To coil unevenly on a drum, as the rope or cable is not *bouking* well. (Barrowman)

Boulangerite. A massive metallic, bluish-gray lead-sulphur-antimony mineral, $Pb_5Sb_4S_{11}$. (Dana)

Boulder. *See* Bowlder.

Boulet (Fr.). A briquet.

Bouleur (Belg.). A small girl who collects coal into heaps in the working places underground. (Gresley)

Bounce. 1. A sudden spalling off of the sides of ribs and pillars due to excessive pressure; a bump. (C. M. P.)
2. An explosion, or the noise of one. (Webster)

Bound (Corn.). An area taken up for tin mining; a tin-bound. (Standard)

Boundary. 1. A line between areas of the earth's surface occupied by rocks or formations of different type and age; especially used in connection with geologic mapping, hence, also, a line between two formations or car-

tographic units on a geologic map. (La Forge)
2. That which indicates or fixes a limit or extent or marks a bound, as of territory. (Webster)

Boundary pillar. A pillar left between adjoining properties in mines. (Roy)

Bounder. 1. (Corn.) The owner of a small patch of ground called a "bound." (Davies)
2. One who, in early times, yearly fixed or marked the bounds of tin mines in Cornwall. (Standard)

Bournonite. A sulphide of lead, antimony, and copper. Approximately $PbCuSbS_3$. Sometimes called Wheel ore. (Dana)

Bourse. The Stock Exchange of Paris or other cities of Continental Europe. (Webster)

Bouse (No. of Eng.). Ore mixed with veinstone; second-class ore, which must undergo further preparation before going to the smelter. Also spelled Boose. (Century)

Bouse-team (No. of Eng.). The place where bouse is deposited outside of a mine, ready to be dressed or prepared for the smelter. (Century)

Bout. 1. (Mid.) A coil of rope upon a drum. 2. (Leic.) A dinner or other jollification given by the owners or lessees of a colliery to their workmen in honor of some special event (Gresley). Also called Do.
3. (Derb.) A measure of lead ore; twenty-four dishes. (Raymond)

Bouteillenstein; Bottlestone. A peculiar green and very pure glass, found as rolled pebbles near Moldau, Bohemia. It is also called Moldavite and Pseudochrysolite, the latter from its resemblance to olivine. It is not certainly a rock, as it may be prehistoric slag or glass. (Kemp)

'Boutgate. 1. (Scot.). A road by which the miners can reach the surface. 2. A passage around a shaft at a landing. 3. A traveling road from one seam to another. (Barrowman)

Bouton (Scot.). 1. A mass of roof consisting of stone or shale. (Gresley)
2. (Scot.). A projecting stone in a shaft or underground road. (Barrowman)

Bóveda (Sp.) 1. A flue leading to stack. 2. An arch of a furnace. (Dwight)
3. A cave or cavern. 4. A chamber deposit. (Halse)

Bovedones (Peru). Large vaulted stopes or caves. (Dwight)

Bovey coal. A kind of brown coal (of the Miocene period) burning with a weak flame and generally a disagreeable odor. Found at Bovey, England. (Webster)

Bow. 1. A short, stout, bowed piece of wood with a cutting wire stretched between its ends: used in working clay in brick making. (Standard)
2. (Eng.). The bent iron bar or handle of a mine bucket. (Gresley)

Bowenite. An unusually hard massive, apple green or greenish-white variety of serpentine. (Dana)

Bower-Barff process. A process for producing, upon articles of iron or steel, an adherent coating of the magnetic oxide of iron, which is not liable to corrosion. (Webster)

Bowk (So. Staff.) 1. A small wooden box in which iron ore is hauled underground. (Raymond)
2. (Aust.) An iron bucket used for raising rock, etc., while sinking. (Power).
3. A report made by the cracking of the strata owing to the extraction of the coal beneath. *See also* Thud.
4. The noise made by the escape of gas under pressure. (G. C. Greenwall)

Bowlder, or Boulder. A fragment of rock brought by natural means from a distance (though this notion of transportation from a distance is not always, in later usage, involved) and usually large and rounded in shape. Cobble stones taken from river-beds are, in some American localities, called bowlders. (Raymond)

Bowlder-belt. A belt of glacial bowlders of many kinds, derived from distant sources and lying transverse to the direction of glacial movement. (Standard)

Bowlder-clay. The stiff, hard, and usually unstratified clay of the drift or glacial period, which contains bowlders scattered through it; also called Till, Hardpan, Drift-clay, or simply Drift (Roy. Com.). *See also* Till.

Bowlder-cracker. A heavy iron rod to be dropped upon a rock encountered by the drill in a deep well boring. (Standard)

Bowlder-fan. A series of bowlder-trains whose lines of direction are divergent. (Standard)

Bowldering-stone. Smooth translucent flint pebbles, found in gravel-pits and used to smooth the faces of emery wheels and glazers by abrading any large grains of emery or other powder on their surfaces. (Century)

Bowlder motion (Local, U. S.). A surface quarry worked only in detached masses of rock overlying the solid rock: sometimes contracted to Motion. (Standard)

Bowlder-pavement. A zone of bowlders, naturally arranged along a beach, and derived from contiguous beds of bowlder-clay. (Standard)

Bowlder pop. An alarm given when a bowlder is to be broken up by a pop shot. (Batesell v. American, Zinc, Lead, etc. Co., 190 Missouri App., p. 236)

Bowlder quarry. A quarry in which the joints are numerous and irregular, so that the stone is naturally broken up into comparatively small blocks (Ries). In Tennessee a local term applied to certain marble quarries in the region of Knoxville, where erosion has formed many large cavities and cracks, between which the rock stands up as pinnacles. The cavities are now filled with clay. (Bowles)

Bowlder-train. A train or line of glacial bowlders of the same sort of rock, extending from the source or parent ledge, perhaps for many miles, in the direction of the ice movement. (La Forge)

Bowl metal. The impure antimony obtained from doubling. *See* Doubling, 1. (C. and M. M. P.)

Bowse; Bouse; Bouze (Derb.). Lead ore as cut from the lode. (Raymond)

Box. 1. The part of a wheel which fits the axle. 2. The threaded nut for the screw of a mounted auger drill. More commonly called boxing. (Steel)
3. A flash or frame for sand molding. (Webster)
4. (Eng.). A vehicle in which coal is conveyed from the working places along the underground roadways and up the shaft. A hutch. (Gresley)

Box barrow. A large wheelbarrow with upright sides. (Webster)

Box-bill. A tool used in deep boring for slipping over and recovering broken rods. (Raymond)

Box bottoms (Leic.). The small coal or slack produced by breakage in transit underground, and by sorting at the surface. (Gresley)

Box canyon. A canyon, from the bottom of which four almost vertical walls appear on all four sides, as a result of the canyon's zigzag course.

Boxed-off. Inclosed or protected by a wooden pipe or partition. (Gresley)

Boxes (Penn.). Wooden partitions for conducting the ventilation from place to place. (Gresley)

Box-groove. A closed groove between two rolls, formed by a collar on one roll, fitting between collars on another. (Raymond)

Box hardening. A process of case hardening by cementation in an iron box. (Webster)

Boxing. A method of securing shafts solely by slabs and wooden pegs. (C. and M. M. P.)

Box metal. A brass, bronze, or antifriction alloy used for the journal boxes of axles or shafting. (Century)

Box timbering. Same as Plank timbering. (Raymond)

Boya (Peru). A rich vein or pocket of ore. (Dwight)

Brace. 1. (Corn.) The mouth of a shaft. (Webster)
2. The platform, collar, or landing at the mouth of a shaft. (Roy. Com.)
3. A rigid piece, as of timber, to hold something, as parts of a frame, firmly in place. Especially, a framed diagonal piece in an angle; a strut. (Standard)
4. (Scot.). An old measure of weight. The Hurlet brace was equal to 4 cwt. (Barrowman)

Brace head. A cross-attachment at the top of the column of rods in deep boring, by means of which the rods and bit are turned after each drop. (Raymond). Same as Topit.

Brace key. Same as Brace head.

Brachy axis. The shorter lateral axis in the crystals of the orthorhombic and triclinic systems. (Webster)

Brachydiagonal. In crystallography, 1. Of or pertaining to the shorter lateral axis. 2. The shorter lateral axis. *See* Brachy axis. (Standard)

Brachydome. In crystallography, a dome parallel to the brachydiagonal. (Standard)

Brachypinacoid. A pinacoid parallel to the vertical and brachydiagonal axes. (Standard)

Brachypyramid. A pyramid whose intercept on the brachydiagonal is less than unity. (Standard)

Brachytypous. In crystallography, comparatively short. (Standard)

Bracket. A platform over a shaft entrance. (Standard)

Bradenhead. In oil-well drilling, an iron or steel head screwed into the top of the casing. The inner pipe projects up through it and is packed with some pliable substance, preferably rubber. The bradenhead is used to confine gas between the tubing and casing, or between two strings of casing, and has an outlet through which gas may be piped away. More commonly called Stuffing-box casing-head.

Bradenhead gas. In oil wells, natural gas inclosed or confined by a bradenhead. It applies to all the gas that lies above the oil and through which the drill must go to reach the lower and more profitable oil sands.

Bradford preferential separation process. A flotation process for the treatment of mixed sulphides, in which is added certain mineral salts, such as thiosulphates, to the water used in the flotation cells. The addition of the salt causes the zinc sulphide to be "wetted" while the lead sulphide and pyrite float. The separation of the zinc mineral from the gangue is effected later. (Megraw)

Brae (Scot.). 1. A hillside, a slope, a bank, a hill.
2. An inclined roadway, more commonly used in the compound form, *e. g.*, pulley-brae, cuddy-brae. (Barrowman)
3. Wood imperfectly burned in a charcoal pit. (Webster)

Braguetilla (Peru). A smelting furnace; the simplest being merely a hole in the ground. (Dwight)

Braird (Scot.). To increase the height of the holing or undercutting. (Barrowman)

Brairding (Scot.). The height of holing or undercutting at front. (Barrowman)

Brait. A rough diamond. (Standard)

Braise. A variant of breeze. The dust of charcoal which accumulates around the furnaces of charcoal works; coal dust; coke dust. (Century)

Brake. 1. (Eng.) A stout wooden lever to which boring rods are attached. It is worked by one or more men. 2. (No. Staff.). To lower trams on dips by means of a wheel and rope. (Gresley)
3. Any device for retarding or stopping by friction, as a block, lever, or band, applied to the rim of a head or drum or the axle of a wheel. (Webster)

Brake beam. The beam that connects the brake blocks of opposite wheels. (Webster)

Brake block. That part a brake holding the brake shoe, or the shoe itself. (Webster)

Brake hanger. A bar or link suspending brake beams. (Webster)

Brake horse power. The actual power given out by an engine or other motor calculated from (1) the force exerted on a frictic brake, (2) the effective radius of this force, and (3) the speed of the flywheel or brake wheel. (Webster)

Brakeman. 1. A man in cnarge of a brake or brakes, as on a railroad car or in a mine. (Standard)
2. (Eng.) The man in charge of a winding (hoisting) engine for a mine. Brakeman is usually used in the United States; brakesman is British usage (Webster). The man in charge of hoisting engines, especially in the United States, is usually called a hoisting engineer.

Brake power. *See* Brake horse power.

Brake shoe. That part of a brake which rubs against some part of the machine, or some object outside of the machine having a relative motion to the shoe, as a wheel or the ground.

Brake sieve. A jigger, operated by a hand lever. (Raymond)

Brakesman (Eng.). *See* Brakeman.

Brake staff (Eng.). *See* Brake, 1; *also* Breakstaff.

Brake wheel. 1. A hand wheel for operating a brake, as on a vehicle. 2. A wheel or pulley on which a friction brake acts. 3. A heavy wheel provided with cams for controlling the movement of a trip hammer. (Webster)

Brances. *See* Brasses, 1.

Branch. 1. (Som.) An underground road or heading driven in coal measures. 2. An underground roadway turned from a level, etc. (Gresley)
3. (Corn.). A small vein departing from the main lode, and in some cases returning. (Raymond)

Branchite. A hydrocarbon mineral from the brown coal of Mt. Vaso in Tuscany. (Bacon)

Branch rope (Aust.). *See* District rope.

Branders (Scot.). Furnace bars.

Brandric (Derb.). An iron guide at the foot of a pump to make the chain enter and prevent wearing. (Hooson)

Brannerite. A complex black opaque titanate of uranium and other elements in which the weight of uranium exceeds that of titanium. Excepting pitchblende, it is the most radioactive opaque mineral known. It contains approximately 43.8 per cent uranium oxides, 39 per cent titanium oxide, 3.9 per cent yttria earths, 4.1 per cent thoria, and small quantities of several other oxides. From the placers of Stanley Basin, Idaho.
Named for Dr. J. C. Branner.

Brard's process. A method adopted by M. Brard to discover in a short time the relative resistance offered by different kinds of rock to the action of moisture and frost, and therefore to determine their durability with reference to exposure. (Page)

Brasca (Sp.). Brasque; a mixture of powdered charcoal and refractory earth, used as a furnace-bottom lining. (Halse)

Brash. 1. A mass of loose or broken fragments of rocks resulting from weathering or disintegration on the spot. 2. Brittle. (Century)

Brashy. Resembling, or the nature of brash or broken fragments; crumbly. (Webster)

Brasque (Fr.). A paste made by mixing powdered charcoal, coal, or coke with clay, molasses, tar, or other suitable substance. It is used for lining hearths, crucibles, etc. Also called Steep. (Webster)

Brasqued crucible. A crucible lined with charcoal or lampblack, and used for the reduction of oxides of metals to the metallic state. The crucible is prepared by ramming it full of lampblack or charcoal, and then excavating a portion of its contents and polishing the lining with a burnisher. (Jackson)

Brass. 1. An alloy of copper and zinc. (Raymond)
2. *See* Brasses, 1.

Brass balls. Nodular pyrite. (Power)

Brass binder (Corn.). A thin pyritous grit. (Power)

Brasses. 1. (Eng. and Wales). Pyrite (sulphide of iron) in coal. (Raymond)
2. Fittings of brass in bearing blocks, etc., for diminishing the friction of revolving journals that rest upon them. (C. and M. M. P.)

Brassfounder's ague. A form of chills and fever common among brass founders and others exposed to the fumes of zinc. (Standard)

Brass furnace. One of two kinds of furnaces for the making and founding of brass. (a) A reverberatory furnace for large quantities of the alloy. (b) A crucible furnace for small quantities. (Century)

Brassil; Brazil. 1. Iron pyrite. (Power)
2. Coal containing pyrite. (Standard)

Brass ore. An early name for aurichalcite (Chester). A basic carbonate of zinc and copper.

Brass powder. 1. A pulverized mixture of copper filings and ocher.
2. Pulverized brass filings. (Standard)

Brassy top (Aust.). The top part of the Greta coal seam, in which there are large quantities of sulphide of iron. (Power)

Brat (Eng. and Wales). A thin bed of coal mixed with pyrite, or with calcium carbonate. (Raymond)

Brattice. 1. A board or plank lining, or other partition, in any mine passage to confine the air and force it into the working places. Its object is to keep the intake air from finding its way by a short route into the return airway (Chance). Also written Brettice, Brettis, Brattish. Temporary brattices are often made of cloth. *See* Brattice cloth.
2. (Mid.). A built-up pillar of cordwood sometimes like a large chock (*which see*), and serving a similar purpose. (Gresley)
3. Planking to support a wall or roof.
4. To provide with a brattice for separation or support. Frequently called Brattice up. (Webster)

Brattice cloth. A heavy canvas, often covered with some water proofing material, for temporarily forcing the air into the face of a breast or heading; also used in place of doors on gangways; then known as "sheets." (Chance)

Brattice man. A person who assists the fire boss in constructing brattices. (Steel)

Brattice road. A road through the goaf supported by chocks or timber packs. (Gresley)

Brattice trick (Aust.). A trick played on inspectors when measuring the air in a mine, the quantity of air being reduced in some districts below its normal amount, in order to increase it in the district being tested. Usually effected by placing a piece of brattice cloth across one of the return airways. (Power)

Brattice wall. The bratticed side of an aircourse or roadway. (Gresley).

Bratticing; Brattishing. A partition in a mine to form an air passage. (Century)

Brattish. A variation of Brattice.

Braunite. A somewhat variable manganese silicate, approximately $3Mn_2O_3.MnSiO_3$. (U. S. Geol. Surv.)

Braze. To solder with hard solder which usually is copper and zinc—half and half. (Nat. Tube Co.)

Braze-jointed. United by a brazed joint or joints. (Webster)

Brazen dish (Eng.). The brass gage, or standard, used in the Low Peak district, Derbyshire, about 1,500. The miners formerly measured lead ore in this dish. It had a capacity of 8 quarts, and was chained at a certain public place. (Hunt)

Brazier. 1. An artificer who works in brass. 2. A pan for holding burning coals. (Webster)

Brazil; Brazzil. Pyrite. (Raymond)

Brazilian chrysolite. A jeweler's name for yellowish-green tourmaline, cut as a gem. (Chester)

Brazilian emerald. A green variety of tourmaline. (Power)

Brazilian pebble. A colorless transparent quartz, such as is used for optical purposes. (Chester)

Brazilian ruby. A light rose-red spinel; or a topaz approaching a red color. (Power)

Brazilian sapphire. A blue variety of tourmaline. (Power)

Brea. 1. Sand or soil impregnated with petroleum from seepages, the volatile constituents having evaporated. (Bacon)
2. Maltha or mineral tar. (Webster)

Breach. 1. An opening made by breaking down a portion of a solid body, as a wall, a dike, or a river bank; a break; a gap. (Century)
2. The face of a level or drift. (Skinner)

Break. 1. A fault; rupture, fracture. (Webster)
2. A crack or small natural cavity or fracture in a coal seam. 3. A crack, often several inches in width, proceeding from old workings or hollows. (Gresley)
4. To come apart or divide into two or more pieces, usually with suddenness and violence; to part, to burst asunder. (Webster)
5. (Scot.). A reduction of the day's wage. (Barrowman)

Break line. 1. The line in which the roof of a coal mine is expected to break. 2. The line of complete extraction of coal. 3. A line roughly following the rear edges of the pillars that are being drawn or mined.

Breakage clause (Eng.). A clause inserted in some mining leases providing for an abatement of royalty or allowance on weight for a certain weight of small coal or breakage sent out in every ton of large coal, *e. g.*, 120 lb. in every collier's ton of 2,640 lb. (Gresley)

Breakback. The fractures caused by the shattering of a solid rock ledge back of the drill holes in which the charge is placed. (Bowles)

Breaker. 1. In anthracite mining, the structure in which the coal is broken, sized, and cleaned for market. Known also as Coal breaker. (Chance)
2. A machine for breaking rocks or for breaking coal. (Webster)
3. (No. of Eng.) A large crack formed in the roof next to the goaf. *See* Break, 1. 4. (Som.) A coal miner or hewer. 5. (Italy) A collier who wedges down coal and fills it into cars. (Gresley)
6. A wave breaking into foam against the shore, or against a sand bank, or a rock or reef near the surface. 7. A transverse ridge in a road to facilitate drainage. (Webster)

Breaker boy. A boy who works in a coal breaker. *See* Breaker, 1. (Steel)

Breakes (Eng.). Fissures in old coal workings (Bainbridge). *See also* Break, 3.

Break-in (Som.). To commence to hole. (Gresley)

Breaking. 1. (Eng.) The breaking of poor or dradgy ore by hand with flat irons, called breaking hammers. (Hunt)
2. (Can.) The poor part of ore ready for crushing. (Morine)

Breaking band (Scot.). A method of setting or fixing props in the workings, in lines running diagonally to the line of the face or wall (Gresley). *Compare* Breaking prop.

Breaking-down machine (Eng.). A mechanical appliance, worked by compressed air, or by hydraulic power, for bringing down the coal after holing. (Gresley)

Breaking-down rolls. The first set of rolls through which hot iron is passed in a rolling mill (Standard). Called also Roughing rolls; Roughing-down rolls.

Breaking-in shot. The first bore hole fired in "blasting off the solid" to provide a space into which material from subsequent shots may be thrown (Du Pont). Also called Opening shot; Buster shot.

Breaking load. The steady and gradually applied load under which a material of construction will break asunder or collapse. (Webster)

Breaking prop (Ark.). One of a row of props of sufficient strength to cause the rock above the coal to break and so limit the area of top brought down by a brushing shot (Steel). *Compare* Breaking band.

Breaking strain; Breaking strength; Breaking stress. The least load that will break a rope. These terms are used indiscriminately to mean the load that will break a rope. The stress on a rope at the moment of breaking is the breaking stress, and the strain or deformation produced in the material by this stress is the breaking strain. (C. M. P.)

Breaking-up (Clev.). A system of employment under which a skilled miner engages an unskilled man, the former paying the latter a mere laborer's wage until he becomes an experienced miner. (Gresley)

Break in lode. A fault. (Duryee)

Breakoff. 1. (Eng.). A short narrow heading driven from one road to another; a breakthrough. (Gresley)
2. (Derb.). An alteration in the vein due to an intrusion of barren rock, or to a fault. (Hooson)

Breakout. Escape of gas, coke, slag, or iron from the bosh, tuyère, breast, or hearth of a blast furnace. (Willcox)

Breakstaff. The lever for blowing a blacksmith's bellows, or for working bore rods up and down (C. and M. M. P.)

Break-through. 1. A narrow passage cut through the pillar to allow the ventilating current to pass from one room to another. Also called a Crosscut, or Room crosscut. Larger than a dog hole. (Steel)
2. An opening accidentally made between two workings.

Break-up. 1. (Eng.). An excavation commenced from the bottom of a tunnel heading and carried upward, so as to form two interior working faces. (Simms)
2. (Mid.). To cut away and remove the floor of an entry or other opening. (Gresley)
3. The thawing and breaking of ice on a river or other body of water with the advent of spring.

Breakwater. A structure or contrivance, as a mole, mound, or wall, serving to break the force of waves and protect a harbor or anything exposed to the force of the waves. (Century)

Breast. 1. The face of a working.
2. In coal mines, a chamber driven in the seam from the gangway, for the extraction of coal. 3. That side of the hearth of a shaft furnace which contains the metal notch. (Raymond)
4. (Italy). A stall in a steep seam from 12 to 18 yards wide. The stalls are carried one above another from the lowest level to the rise. 5. (Leic.). To take down or get a buttock (face) of coal end-on. (Gresley)
6. That part of the bedplate which is back of the crossheads in engines of the Corliss type. (Crofutt)

Breast-and-pillar (Penn.). A system of working anthracite coal by bords 10 yards in width, with narrow pillars 5 yards wide between them, holed through at certain intervals. *See* Bord-and-pillar. The breasts are worked from the dip to the rise. (Gresley)

Breast auger. An auger supported by a breast plate against the miner's body. Used for drilling holes in soft coal. (Steel)

Breast boards. Planking placed between the last set of timbers and the face of a gangway or heading which is in quicksand or loose ground. (Raymond)

Breast-bore (Scot.). A borehole put in parallel with the seam, made and kept in advance of a working-place, for the purpose of ascertaining the position of old works, tapping water, letting off gas, etc. (Gresley)

Breast-eyes (Lanc.). *See* Day, 1; Day eyes, *also* Day-hole.

Breast-heads. Natural joints in rock, coal, etc. (Gresley)

Breast holes. Relief holes used in tunneling, and which are fired after the bottom cut. (Du Pont)

Breasting. 1. (No. Staff.) A short leading stall, worked at right angles to and forming the face of the main levels. 2. A wide heading or level. (Gresley)
3. (Eng.) Taking ore from the face or head of a drift. (Skinner)

Breastplate. A slightly curved iron plate fastened to the end of a coal auger to enable the miner to press the auger forward with his body. (Steel)

Breast stoping. A method of stoping employed on veins where the dip is not sufficient for the broken ore to be removed by gravity. The ore remains close to the working-face and must be loaded into cars at that point (Crane). *See also* Overhand stoping.

Breast wall (Eng.). A wall built to prevent the falling of a vertical face cut into the natural soil. (C. and M. M. P.)

Breast wheel. A type of water wheel on which the water is led at about half the height of the wheel. The water acts partly by impulse and partly by weight as it descends in the buckets. (Webster)

Breather (Eng.). An apparatus enabling a man to enter and explore underground workings filled with noxious gases. (Gresley, 1883)

Breccia. A fragmental rock whose components are angular and therefore, as distinguished from conglomerates, are not water-worn. There are friction or fault-breccias, talus-breccias and eruptive breccias. The word is of Italian origin. (Kemp)

Breccia marble. Any marble made up of angular fragments. (Merrill)

Brecciated. Converted into, or resembling, a breccia. (Webster)

Brecciated vein. A fissure filled with fragments of rock in the interstices of which vein matter is deposited. (Shamel, p. 146)

Brecha. 1. (Mex.) Breccia. 2. (Colom.) An open trench or cut leading to the mouth of an adit; or a channel by which pay gravel is led to the ground sluice. 3. (Port.) A prospecting cut. (Halse)

Breeching. 1. (Mid.) Drawing loaded trams down hill underground. (Gresley)
2. That part of a harness which passes round the breech of a horse, enabling him to hold back a vehicle.
3. The sheet-iron casing at the end of boilers to convey the smoke from the flues to the smokestack. (Webster)

Breeding-fire (So. Staff.). Spontaneous combustion in a mine. *See also* Gob fire. (Gresley)

Breese. *See* Breeze.

Breeze. 1. (Eng.) Small coke. Probably connected, perhaps interchangeable, with Braize, and both with the Fr. *Braise*, to cook over live coals. (Raymond)
2. (Scot.) Fine or slack coal. (Gresley)

Breeze oven. 1. An oven for the manufacture of small coke. 2. A furnace designed to consume breeze or coal dust. (Century)

Breithauptite. Nickel antimonide NiSb). *See also* Niccolite. (Dana)

Brelho (Port.). A pebble; a small stone. (Halse)

Bremen blue. *See* Verditer, 3.

Brenner (Eng). A smelter (Bainbridge). An old variant derived from the word burn. A burner.

Brenston. *See* Brimstone.

Brettice; Brettis. *See* Brattice.

Brettice cloth. *See* Brattice cloth.

Brettis (Derb.). A crib of timber filled up with slack or waste (Raymond). *See also* Brattice, 3.

Brettis-way (Derb.). A road in a coal mine, supported by brattices built on each side after the coal has been worked out (Raymond). *See also* Brattice, 3.

Breunnerite. A variety of magnesite containing several per cent of FeO. (Dana)

Brick. A building and paving material made from clay by molding into blocks while moist, and hardening it in the sun or by fire. (Webster)

Brick ax. A two-edged ax used for cutting off bricks. (Webster)

Brick clamp. A stack of bricks for burning, in layers alternating with layers of breeze, or fine coal and cinders. (Standard)

Brick clay. Any clay that can be used for brick manufacture. (Ries)

Brick coal (Eng.). Small, dirty coal suitable for brick kilns and similar purposes. (Gresley)

Brick earth. Clay or earth for making bricks. (Webster)

Brickfield; Brickyard. A field or yard where bricks are made. (Century)

Brick fuel (Wales). Patent fuel; a synonym for Briquet.

Bricking. The walling or casing of a shaft. (Gresley)

Brick kiln. 1. A structure of unburned brick built into flues and chambers through which heat passes from a fire below, burning the brick. 2. A permanent structure, having stacks or chimneys, in which unburned bricks are burned by heat from a central source. (Standard)
3. A pile of green bricks arched underneath to receive the fuel for burning them. (Webster)

Brick layer's itch. An itching eczema of the hands occurring among bricklayers, caused by contact with lime. (Webster)

Brick machine. An apparatus for molding bricks. (Century)

Brick red. A dark orange-red like that of common bricks. (Webster)

Brickstone (Prov. Eng.). A brick. (Century)

Brickyard. A place where bricks are made. (Standard)

Bridge. 1. A low separating wall, usually of fire brick, in a reverberatory furnace between the hearth and the grate (fire bridge) or sometimes between the hearth and the flue (flue bridge). Often called bridge wall. 2. A plank way or platform to convey fuel or ore to the mouth of a furnace. 3. A device to measure the resistance of a wire or other conductor forming a part of an electric circuit. (Webster)
4. A piece of timber held above the cap of a set by blocks and used to facilitate the driving of spiling in soft or running ground. (Sanders)
5. *See* Air crossing.
6. (Eng.). A platform mounted on wheels, for covering the mouth of a shaft when landing coal, rock, or men at surface. (Gresley)

Bridge operator. One who operates an ore bridge of the Gantry crane type. (Willcox)

Bridge rails (Aust.). Rails made in the form of an inverted U, generally in short lengths, which are light to handle, and can be brought within easy shoveling distance of the face. (Power)

Bridge wire. The fine platinum wire which is heated by the passage of an electric current to ignite the priming charge of an electric blasting cap, an electric squib or similar devices. (Du Pont)

Bridgman sampler. A mechanical device which automatically selects 2 samples as the ore passes through. (Hofman, p. 59)

Bridle bar. The transverse bar connecting the points of a tramway switch (C. M. P.). *See also* Bridle rod.

Bridle chains. Safety chains to support the cage if the shackle should break, or to protect a train of cars on a slope should the shackle or drawbar fail.

Bridle iron. A strong flat iron bar so bent as to support, as in a stirrup, one end of a floor timber, where no sufficient bearing can be had. (Webster)

Bridle rod. An iron tiebar used to join the ends of two switch rails to hold them to gage (Webster). A bridle bar.

Brier (No. of Eng.). A beam or girder fixed across a shaft top. (Gresley)

Briggs' standard. A list of pipe sizes, thickness, threads, etc., compiled by Robert Briggs about 1862 and subsequently adopted as a standard. (Nat. Tube Co.)

Brightening. *See* Blick.

Bright-head (York). A smooth parting or joint in coal. A plane of cleavage. (Gresley)

Bright rope. Rope of any construction, whose wires have not been galvanized, tinned, or otherwise coated. (C. M. P.)

Brilliant. A diamond of the finest cut, reflecting and refracting light by means of the faces and facets formed upon it. (Standard)

Brillo (Mex.). Luster. (Dwight)

Brimstone. A common name for sulphur.

Brine. Water strongly impregnated with salt. (Webster)

Brine pit. A salt spring or well from which water is taken to be boiled or evaporated for making salt. (Century)

Brine spring. A spring of salt water. (Century)

Bring-back (Eng.). To work away the pillars of coal from the boundary toward the shaft bottom. (Gresley)

Brin's process. A process for manufacturing oxygen, in which barium monoxide is converted into dioxide by heating in air, and the dioxide by further heating is decomposed into the monoxide and oxygen. (Webster)

Briolette (Fr.). An oval or pear-shaped diamond having its entire surface cut in triangular facets. (Webster)

Briquet. 1. Fuel consisting of slack, or coke breeze, with usually some binding material, and pressed into lump form; also called Coalette, Egette, Boulet, and Carbonet. (Steel)

2. An artificially compressed block, as of ore, coal dust, etc. (Standard)

Briquettes (Fr.). *See* Brick fuel; *also* Briquet.

Briscale (It.). A gypsiferous deposit occurring at the outcrop of the sulphur deposits of Sicily. (W. C. Phalen, mineral technologist, U. S. Bur. Mines.)

Bristol diamond. A fine transparent variety of crystallized quartz. Also called Irish diamond. (Power)

Bristol stone. 1. Brick-like blocks of very fine sand used for polishing and scouring. 2. Bristol diamonds, or small well-defined crystals of quartz from Bristol. (Standard)

Britannia. An alloy, made of tin with varying proportions of copper and antimony (Standard). Called also Britannia metal, and Tutania.

Britching (Scot.) *See* Breeching, 2.

British; Brettys (Scot.). A variation of Brattice.

British barilla. Same as Black ash. (Standard)

British plate. Albata, an alloy of nickel, copper, and zinc. (Standard)

British thermal unit. The $\frac{1}{180}$ quantity of heat required to raise the temperature of one pound of water from 32° to 212° F.; substantially equal to that required to raise the temperature of one pound of water from 63° to 64° F. (G. A. Goodenough, Mech. Eng. Handbook, 1916, p. 295) Abbreviated as B. t. u.

Brittle. Easily broken; not tough or tenacious. (Dana)

Brittle mica. A synonym for Margarite.

Brittle silver ore. A synonym for Stephanite.

Broach. 1. A sharp-pointed chisel for rough-dressing of stones. 2. A reamer. 3. To shape roughly, as a block of stone, by chiseling with a coarse tool. (Webster)

Broaching. Trimming or straightening a mine working. (Morrison)

Broaching-bit. A tool used to restore the dimensions of a bore hole which which has been contracted by the swelling of the marl or clay walls; also used to break down the intervening rock between two contiguous drill holes. A reamer.

Broadgate (Eng.). A main working. (Bainbridge)

Broadstone bind (Eng.). Shale or clay which breaks up into large blocks or slabs. (Gresley)

Broadwall (No. of Eng.). *See* Longwall.

Brob. 1. A heavy spike, driven alongside the end of an abutting timber to prevent its slipping. (Raymond)

2. (Mid.). A short thick timber prop or sprag for supporting the coal while it is being holed. (Gresley)

Broca (Mex.). A drill bit. (Dwight)

Brocal (Sp.). The first set of shaft timbers; the collar; *B. del tiro*, the mouth of a shaft; *B. del pozo*, a well curb, or mouth of a well. (Halse)

Brocar (Port.). To bore or drill. (Halse)

Brocatelle marble. A variety of marble from the French Pyrenees. The body of the stone is fine, compact and of light-yellow color traversed by veins and dull-red blotches. The name signifies a coarse kind of tapestry, which it somewhat resembles (Merrill). *See also* Broccatello, the Italian term.

Broccatello. An Italian word for a brecciated and variegated marble (Kemp). *See also* Brocatelle, the French term.

Brochantite. A basic sulphate of copper, $CuSO_4.3Cu(OH)_2$. (U. S. Geol. Surv.)

Bröggerite. A radioactive mineral provisionally classified as a variety of uraninite. It occurs in octahedral crystals. Sp. gr., 9.03. (Webster)

Broil (Corn.). A collection of loose rock fragments usually discolored by oxidation, and indicating the presence of a mineral vein beneath; outcrop; gossan (Century). Also spelled Bryle, Broyl.

Broken. 1. (Eng.). That part of a mine where the mineral has already been partly worked away, and where the remainder is in course of being extracted. (Gresley)
2. The dislocation of a vein by faulting. (Weed)

Broken ashlar. Ashlar in which the stones are rectangular, but of different sizes and shapes. (Webster)

Broken charge. A charge of explosive in a drill hole divided into two or more parts that are separated by stemming. (Bowles)

Broken coal. In anthracite only; coal that is small enough to pass through a $3\frac{3}{8}$ to 4-inch (square) aperture, but too large to pass through a $2\frac{3}{4}$ or $2\frac{1}{2}$-inch mesh. Smaller than steamboat, and larger than egg coal. (Chance)

Broken ground. 1. Rock strata where the walls are poorly defined and the general formation shattered. (Weed)
2. (Eng.). Faulty or unproductive measures. (Gresley)

Broken-range work. Masonry-work made of squared stones in courses of uneven heights. (Standard)

Broken skip (Aust.). A skip (car) from which some of the coal has fallen off in transit leaving only a part of a skip load. (Power)

Bromargyrite. *See* Bromyrite.

Bromine. One of the elements, which is at ordinary temperature, a deep reddish-brown caustic liquid of a very disagreeable odor. Symbol, Br; atomic weight, 79.92; specific gravity, 3.2. (Webster)
It does not occur native but is derived in large quantities from brines. Its form of occurrence in the brines is unknown. (U. S. Geol. Surv.)

Bromite. Same as Bromyrite.

Bromlite. A barium-calcium carbonate $(Ba,Ca)CO_3$ from Bromley Hill, Eng. Also called Alstonite. (Webster)

Bromyrite. A silver bromide, AgBr, containing 57 per cent. silver. (U. S. Geol. Surv.)

Bronce (Sp.). Iron or copper pyrites.

Bronze. Any mineral like bronze or brass in appearance. (Halse)

Bronco (Mex.). Wild, loose. Roof-rock, liable to fall. (Dwight)

Brongniardite. A lead-silver sulphantimonide, $PbAg_2Sb_2S_4$. Contains 26.2 per cent. silver. (U. S. Geol. Surv.)

Bronquear (Mex.). To hammer or pry with hammer or gad in rock which is loose and liable to fall. (Dwight)

Brontolith. A meteoric stone; a thunder-stone. (Standard)

Bronze. An alloy of copper and tin. (Raymond)

Bronze-gold. Any bronze resembling gold in color. (Standard)

Bronze mica. A synonym for Phlogopite.

Bronze steel. An alloy of copper, tin, and iron: used as gun metal. (Standard)

Bronzite. 1. A ferriferous variety of enstatite often having a bronze-like luster. (Webster)
2. Is often used as a prefix to the names of rocks containing the mineral. Rocks of the gabbro family are the commonest ones that have the prefix. (Kemp)

Bronzitite. An igneous rock composed wholly of bronzite. (Standard)

Bronzudos (Mex.). Pyritic ores. (Halse)

Brooch (Corn). A mixture of various ores. (Power)

Broaching. *See* Broaching.

Brood (Corn.). The heavier kinds of waste in tin and copper ores (Raymond). A mixture of tin and copper ore. (Pryce)

Brookite. Titanium dioxide, TiO_2. Identical in composition with rutile, but occurs in brown translucent orthorhombic crystals. (Dana)

Broqueiro (Braz.). A miner, borer, or driller. (Halse)

Brora (Eng.). In Sutherland, the imperfect coal in the lower part of the Oölite formation. (Roberts)

Brosing; Brosing time (Scot.). Meal time. (Barrowman)

Brotazón de veta (Mex.). Apex of vein; croppings. (Dwight)

Brouse (Derb.). A sort of coarse stopping, made of small boughs of trees, and placed back of shaft timbers to prevent rock from falling. (Hooson)

Brow, 1. (Lanc.) An underground roadway leading to a working place, driven either to the rise or to the dip. 2. A low place in the roof of a mine, giving insufficient headroom. (Gresley)
2. The edge or projecting upper part of a steep place, as the brow of a precipice or hill. (Webster)

Brow bar (Mid.). A massive curb or beam of timber fixed in the wall of the shaft across the top of an inset or station (Gresley). Also called Brow piece.

Brown clay-ironstone. Compact, often nodular masses of limonite with clay impurities. (Moses)

Brown coal. Lignite. A fuel intermediate between peat and bituminous coal. (Steel)

Brown-face. Gossan of the tin lodes of Tasmania. (Vogt)

Brown hematite. Limonite. *See also* Brown iron ore.

Brown hen (Derb.). A hard, brown clay which sticks to the ore, making the ore look poor, to the disadvantage of the miner. (Hooson)

Brown horseshoe furnace. A furnace of the annular turret type for calcining sulphide ores. (Peters, p. 218; Hofman, p. 182; Ingalls, p. 85)

Brown iron ore; Limonite; Brown hematite; Bog iron ore. Its approximate formula is $2Fe_2O_3.3H_2O$, equivalent to about 59.8 per cent iron. Probably a mixture of hydrous iron oxides. (U. S. Geol. Surv.)

Brown lead ore. An early name for brown pyromorphite. (Chester)

Brown muffle furnace. A merchanically-raked roasting furnace of the straight-line type with a series of longitudinal combustion flues placed under the hearth. (Ingalls, p. 139)

Brown-O'Hara furnace. A long, horizontal, double-hearth furnace for the treatment of lead ores. (Hofman, p. 190)

Brown panel system. Same as Pillar-and-breast in coal mining.

Brown petroleum. A natural solid, or semi-solid product produced by the action of air upon fluid bitumens. (Bacon)

Brown spar. Any light carbonate, colored brown by the presence of iron oxide, as ankerite, dolomite, magnesite, or siderite. (Standard)

Brown stone (Aust.). Decomposed iron pyrite. (Power)

Brownstone. A dark-brown sandstone from quarries in the Triassic, especially from the Connecticut River valley. Used as a building stone (Century). *See also* Sandstone.

Brown tank. A cylindrical tank or vat, tall in proportion to its diameter, with the bottom ending in a 60° cone. Within the tank is a hollow column extending from the bottom to within about 8 inches from the top. The apparatus works on the air-lift principle, the aerated pulp in the tube flowing upward, and discharging at the top while more pulp flows in at the bottom to take its place. It is in reality a pulp agitator. Also called Pachuca tank.

Brown umber. A brown earthy variety of limonite. (Power)

Brow piece. A heavy timber used for underpinning in the opening of a station for a new level in a mine. (Webster). *See* Brow bar.

Browse. Ore imperfectly smelted, mixed with cinder and clay. (Raymond)

Brow-up (Lanc.). An inclined roadway driven to the rise. Also called Brow or Up-brow. (Gresley)

Broxburn oil shale. A Scottish shale which yields 23 to 35 gals. of crude oil and 35 to 40 lbs. of ammonium sulphate per ton. (Bacon)

Broyl (Corn.). *See* Broil.

Broza (Batopilas, Mex.). 1. Ore containing two-thirds native silver and one-third calcite. 2. (Chile) Waste, rubbish. (Halse)
3. (Peru) Very poor ores which generally do not repay extraction. (Dwight)

Brozires (Bol.). Men who break large stones in the mines. (Halse)

Brucite. Hydrated magnesium oxide, $MgO.H_2O$. (Dana)

Brückner cylinder (Pac.). A form of revolving roasting furnace (Raymond). *See* Brückner furnace.

Brückner furnace. A horizontal, revolving, cylindrical furnace for roasting pulverized sulphide ores. (Peters, p. 196; Hofman, p. 198; Ingalls, p. 121)

Brújula (Mex.). Magnetic compass. (Dwight)

Brunnerite. A blue to violet variety of calcite that is found both as cuboid crystals and massive. (Standard)

Brunoing (Ark. and Mo.). Pulling fine ore down from the working place, especially with the hands. From its similarity to the action of a bear. (J. J. Rutledge)

Bruno man (Ark. and Mo.). One who removes fine ore from a working place, especially when the work is done with the hands. *See also* Brunoing.

Brunstone. A Scotch form of brimstone. (Century.)

Brunton. A small pocket compass with sights and a reflector attached, used in sketching mine workings, as in mine examinations, or in preliminary surveys.

Brunton's sampler. A mechanical sampling device which automatically selects 1/625 part of the ore passing through the sampler. (Hofman, p. 57)

Brush. 1. (Mid.) To mix gas with air in the mine by buffetting it with a jacket. 2. (Forest of Dean.) A rich brown hematite. (Gresley)
3. To shoot or wedge down some of the rock over a roadway to increase the height of head-room. Less often, to take up bottom for the same purpose. (Steel)

Brush hook. A short heavy hook with an axe handle, used by surveyors for cutting brush.

Brushers (Scot., Som.). Men who brush the roof, build packs and stoppings (Gresley). *See also* Brush 3. Also called Stonemen.

Brushing. 1. (Scot.). That part of the roof or floor of a seam removed to form roadways. (Barrowman)
2. Digging up the bottom or the taking down the top of an entry or room for the purpose of admitting cars where the seam of coal is too thin or shallow for the admission of cars. *See* Brush, 3. (Williams *v.* Craig Dawson Coal Co., 146 Northwestern, p. 736)

Brushing bed (Scot.). The stratum brushed or ripped (Gresley). *See also* Brush, 3.

Brushing shot. 1. A charge fired in the air of a mine to blow out obnoxious gases, or to start an air current. (Du Pont)
2. A shot so placed as to remove a portion of the roof to increase height of a haulage way. *See also* Brush, 3.

Brushite. A nearly colorless acid phosphate of calcium, $HCaPO_4 + 2H_2O$, in slender crystals or massive. (Webster)

Brush ore. An iron ore in brushlike or stalactitic forms (Webster). *See also* Brush, 2.

Bruskins (Mid.). Lumps of coal weighing about one pound each. (Gresley)

Bryan mill. A three-roll (edge-roller) mill of the Chilean type.

Bryle (Corn.). *See* Broll.

B. S. oil. A term applied to crude-oil tank residues. *See also* Bottom settlings. (Bacon)

B. t. u. An abbreviation for British thermal unit.

Bubble. A globule of air or other gas in a liquid; also a vesicle of water or other liquid inflated with air or other gas (Rickard). A term used in flotation.

Bucaramangite. A resin resembling amber but insoluble in alcohol and yielding no succinic acid. (Bacon)

Buche (Port.). A pocket or bunch of ore. (Halse)

Buchnerite. A name proposed by Wadsworth for those peridotites, terrestrial and meteoric, which consist of olivine, enstatite (bronzite) and augite. The name was given in honor of Dr. Otto Buchner, an authority on meteorites. (Kemp)

Buchonite. A special name given by Sandberger to a nephelite-tephrite that contains hornblende. (Kemp)

Buck. 1. To break up or pulverize, as ores. 2. To carry, as to buck water. (Webster)

Bucker 1. (Derb.). A flat piece of iron with a wooden handle, used for breaking ore. (Raymond)
2. One who bucks or breaks ore.
3. (Washington). A laborer who pushes coal down a chute in pitching or inclined coal seams.

Bucket. 1. A vessel for hoisting and conveying water, coal, ore, or grain. A tub or scoop of which there are several types. 2. One of the receptacles on the rim of a water wheel into which the water rushes causing the wheel to revolve. (Webster)
3. The piston of a well pump. It always contains a valve. It is connected to and operated by the sucker rods. (Nat. Tube Co.)

Bucket door (Scot.). The cover of an opening in pipes for access to the pump bucket. (Barrowman)

Bucket-door piece (Eng.). The portion of a set of pumps immediately above the working barrel, having a removable door through which the bucket is changed; the bucket door is secured to the bucket-door piece by bolts. (G. C. Greenwell)

Bucket dredge. A dredge in which the material excavated is lifted by an endless chain of buckets. (Weatherbe)

Bucketing (Eng.). The operation of removing a worn-out pump bucket or clack, and replacing it with a new one. (Gresley)

Bucket lid (Scot.). The flap of a bucket valve. (Barrowman)

Bucket lift (Eng.). The iron pipes of a mine pump. (Bainbridge)

Bucket line. The series of joined buckets forming part of the digging apparatus of a dredge. (Weatherbe)

Bucket machine. *See* Elevator pump.

Bucket mounting (Scot.). Leather or gutta-percha packing of a pump bucket. (Barrowman)

Bucket piece (Scot.). The pipe carrying the bucket door of a pump. (Barrowman)

Bucket pump. 1. A lifting pump. 2. An iron or wooden receptacle for hoisting ore, or for raising rock in shaft sinking. (Chance)

Bucket rods (Eng.). Wooden rods to which a pump piston is attached. (Bainbridge)

Bucket shell (Scot.). The cast-iron or brass frame of a pump bucket. (Barrowman)

Bucket sword (Eng.). A wrought-iron rod to which a pump bucket is attached, having at its upper end a knocking-off joint. (Gresley)

Bucket tree (Eng.). The pipe between the working barrel and the windbore of a pump. (Gresley)

Bucking (Derb.). The act of breaking or pulverizing ore. The bucking hammer or bucking iron is a broad headed hammer used for this purpose; and the ore is broken on a flat piece of iron (bucking plate). (Raymond)

Bucking hammer. *See* Bucking.

Bucking iron. *See* Bucking; Bucking plate.

Bucking ore. A hand process of crushing ore. (Woodson)

Bucking plate. An iron plate on which ore is ground by hand by means of a muller. Extensively used for the final reduction of ore samples for assaying. Also called Bucking iron.

Bucklandite. 1. A black variety of epidote having a tinge of green, and differing from ordinary epidote in having the crystals nearly symmetrical and not, like other epidote, lengthened in the direction of the orthodiagonal. 2. Anhyodrus allanite in small black crystals. (Dana)

Bucklers; Tacklers (Derb.). Small chains put around the coal when loaded in corves, to prevent it falling off. (Min. Jour.)

Buckling. The act of bending; tendency to bend or become wavy. (Century)

Buck quartz (Aust.). Non-auriferous quartz. (Power)

Buckshot (Aust.). Graunlated lava imbedded in a sandy alluvium. (Standard)

Buckshot cinder. Cinder from the iron blast furnace, containing grains of iron. (Winchell)

Buckshot land; Buckshot soil. Land or soil containing many limonitic nodules. (Standard)

Buck staff. *See* Buckstay.

Buckstay. An upright iron or steel brace resting upon or built into a boiler setting or furnace wall to support the brickwork. (C. M. P.)

Buckstone. Rock not producing gold (Duryée). *Compare* Buck quartz.

Buck-up (Eng.). A contribution by shareholders. (Bainbridge)

Buckwheat; Buckwheat coal. In anthracite only. Buckwheat is divided into four sizes: No. 1, or buckwheat; No. 2, or rice; No. 3, or barley; No. 4, or barley No. 2, or silt (sometimes also called culm or slush). Buckwheat No. 1 passes through a $\frac{1}{2}$-inch woven wire screen and over a $\frac{5}{16}$-inch woven wire screen, through a $\frac{9}{16}$-inch round punched plate and over a $\frac{3}{8}$-inch round punched plate. The American Institute of Mechanical Engineers has recommended that buckwheat No. 1 shall pass through $\frac{9}{16}$-inch holes and over $\frac{5}{16}$-inch holes, a screen with circular holes being used.

Buckwheat slate. A friable slate (shale) that requires careful timbering in headings driven through it. It crumbles badly at or near the surface of the ground.

Buddagh (Leinster, Ireland). A highly carbonaceous, soft, muddy-looking fire clay. (Power)

Buddle. 1. (Corn.). An inclined vat, or stationary or revolving platform, upon which ore is concentrated by means of running water. Strictly the buddle is a shallow vat, not a platform or table, at least not in some localities. But general usage makes no distinction. (Raymond)
2. To separate (ore) from slime or stamp work by means of a buddle. (Standard)

Buddler (Derb.). One who searches old workings for ore. *Compare* Caver, 1. (Mander)

Buddle work (Eng.). Dressed and partly-dressed ore obtained from the buddle. (Hunt)

Buddy. A partner. Each of two men who work in the same working place of a coal mine. Sometimes spelled Butty. (Steel)

Bufa (Mex.). 1. Cliff or precipice. 2. At Mazapil, brown iron ore and malachite. (Halse)

Bufador (Sp.). A blower or sudden outburst of gas. (Halse)

Buffer. 1. An elastic apparatus or fender for deadening the jar caused by the collision of bodies. Anything serving to deaden a shock. (Webster)
2. A rotating head covered with felt or other soft material. It is supplied with a fine polishing powder and is employed to polish the surface of stone. (Bowles)

Buffer bar. The heavy iron bar in a railroad car which receives the impact of the other cars. (Webster)

Buffer beam (Scot.). Beams fixed in a shaft to prevent pump rods from traveling too far. (Barrowman)

Buffer block. A block serving as a buffer. (Webster)

Buffer rope (Aust.). A rope suspended between the cages in a shaft where rope guides are employed, so as to prevent the cages from colliding. (Power)

Buffer shooting. Same as Blanket shooting. (Bowles)

Buffer-thimble. A cast-iron bushing on the end-timber of the platform of a car. (Standard)

Buffing machine. A machine used for buffing or polishing. (Century)

Buff stick. A piece of stick covered with leather or velvet and charged with emery or other powder, used in polishing. (Century)

Buff ware (Staff.). A stoneware made from clay and other ingredients; it is not decorated. (Century)

Buff wheel. An emery wheel. (Webster)

Bug dust. The fine coal or other material resulting from a boring or cutting of a drill, mining machine, or even a pick. This is sometimes wrongly used as a tamping or stemming material in coal mining (Du Pont). *See also* Makings.

Buggy. A small wagon or truck used for short transportation of heavy material as coal in a mine, lumber, steel ingots, etc. (Webster). A four-wheeled steel car used for hauling coal to and from chutes. (Sabela v. Newport Min. Co., 184 Michigan, p. 677)

Bug hole. A small cavity, in a rock, usually lined with crystals (C. and M. M. P.). *See also* Vug.

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Bugre (Braz.). Pockets of yellow clay, rich in gold, found especially in contact with the itabirites and quartzites. (Halse)

Buhrstone. A silicified fossiliferous limestone, with abundant cavities which were formerly occupied by fossil shells. Its cellular character and toughness occasioned its extensive use as a millstone in former years (Kemp). Also spelled Burrstone, and Burstone.

Buildhouse. *See* Bildas.

Builders-up (Eng.). Men who make packs and set timber, in ironstone mines. (Gresley)

Building (Som.). A built-up block, or pillar of stone or coal to carry the roof (Gresley). *See also* Cog.

Building stone. 1. (Som.) Sandstone or other rock suitable for pack building (Gresley). *See also* Sandstone. 2. Stone suitable for use in masonry construction.

Built-up. *See* Chunked-up.

Buitrón. 1. (Sp.) A low blast furnace for smelting silver ore. 2. (Mex.) Fire box. 3. (Peru) A masonry sump for settling pulp after grinding and before taking it to the *patio*. (Dwight)

Bujía (Mex.). A candle; candle power. (Dwight)

Bule. 1. (Eng.) A bit of iron put round pistons. (Bainbridge)
2. (Derb.) The handle or bail of an ore bucket. (Hooson)

Bulk (Brist.). Run-of-mine coal in large quantities. (Gresley)

Bulkhead. 1. A tight partition or stopping in a mine for protection against water, fire, or gas. 2. The end of a flume, whence water is carried in iron pipes to hydraulic workings. (Raymond)
3. A solid crib used to support a very heavy roof. *See also* Cog; Chock.

Bulk-oil flotation. A flotation process in which large amounts of oil are used. (Ralston)

Bull. 1. (No. of Eng.) An iron rod for preparing a shot-hole in watery ground when the hole has to be lined with clay (Gresley). *See also* Clay iron.
2. (Aust.). *See* Drag, 1 and 2; *also* Backstay.

Bull bit. A flat drill bit. (Gillette)

Bulldog. 1. A refractory material used as furnace-lining, got by calcining mill-cinder, and containing silica and ferric oxide. 2. (Penn.) *See also* Buckshot-cinder. (Raymond)

Bulldoze (U. S.) To reduce broken rock by the use of explosives to a size handy for raising to the surface (Skinner). *See also* Mud cap; Secondary blasting.

Bull engine. A single-acting pumping engine constructed upon the direct-acting principle (Gresley). *See also* Bull pump.

Buller shot. 1. (Som.) A second shot put in close to and to do the work not done by a blown-out shot, loose powder being used. (Gresley)
2. (Scot.) A blown-out shot (Barrowman). Also called Buller.

Bulletin. 1. A large tabulation sheet on which the weight of each car load of coal each miner sends out is entered. Also called Coal bulletin. (Steel)
2. A brief or condensed statement of news to the public, as issued by an acknowledged authority. A periodical. (Webster)
3. A class of publications issued by the U. S. Bureau of Mines; U. S. Geological Survey etc.

Bulletin board. A board on which bulletins are posted (Webster). *See also* Bulletin, 1.

Bullfrog. *See* Barney.

Bulling. 1. The dislodging of rock by exploding blasting charges in fissures. (Webster)
2. Lining a shot hole with clay. (C. and M. M. P.)

Bulling bar. An iron bar used to pound clay into the crevices crossing a bore hole, which is thus rendered gas-tight (Ihlseng). *Compare* Bull, 1.

Bulling shovel. A triangular, sharp-pointed shovel used in ore dressing. Also called Vanning shovel. (Century)

Bullion. 1. Uncoined gold and silver. Base bullion is usually pig lead containing but little gold or silver. (Lawver)
2. Gold and silver coined but considered simply with reference to its commercial value as raw material. 3. Figuratively, solid gold and silver, as distinguished from mere imitations; hence solid worth. (Standard)

Bullion balance. A sensitive beam balance of heavy construction used for weighing bullion and specie. (Webster)

Bullion bar. 1. Unrefined gold or silver melted and cast into a bar. (Weed)
2. A bar upon which the molten glass at the end of a blowing tube is rested to assist in bringing it into special shape. (Webster)

Bullions (Lanc.). Nodules of clay ironstone, pyrite, shale, etc., which generally inclose a fossil. (Gresley)

Bull point. A large steel point driven with a sledge. (Bowles)

Bull pump (Corn.). A direct single-acting pump, the steam cylinder of which is placed over the top of a shaft or slope, and the piston rod attached to the pump rods. The steam lifts piston and pump rods and the weight of these produces the down stroke. (Raymond)

Bull pup. A worthless mining claim. (C. and M. M. P.)

Bull rope. In well boring, the rope from which the boring tools are suspended and by which they are worked. (Webster)

Bull's eyes. Nodules of pyrite in roofing slate. (Power)

Bull's-eye tuyère. A tuyère discharging in the center of a hemispherical plate. (Standard)

Bull wheel. 1. In well drilling, a wheel on which the bull rope is wound. 2. An underground sheave wheel. Particularly the wheel around which the tail rope is passed beyond each terminal of a tail-rope haulage system. (Steel)

Bully. A pattern of miners' hammer, varying from "broad-bully" to "narrow-bully." (Raymond)

Bullying. *See* Springing.

Bumicky. A combination of powdered stone and cement used to fill crevices made by the accidental chipping, as of building stones: a stonemason's term. (Standard)

Bumming. 1. (Scot.). Heaving or rising of the pavement or floor 2. Emitting a hollow sound when struck. (Barrowman)

Bump (Eng.). 1. A sudden breaking sometimes accompanied by a settling or upheaval of the strata in the mine, accompanied by a loud report. Also called Crump (Gresley). *See also* Bounce, 1. The term is not in common use among the miners in this country, and has been interpreted by many to indicate a sudden squeeze, or buckling of the floor or walls of the mine passage-ways. This is not the case, as the word is practically synonymous with "jar." It has its origin in the shocks accompanying earth movements. (Geo. S. Rice, chief mining engineer, U. S. Bur. Mines)

Bumper. *See* Buffer, 2; Catches, 3.

Bumping and jerking tables. These machines use mechanical agitation to bring the light and heavy grains into their respective layers on a washing surface, and they use a bumping or jerking action to convey the heavy grains to one side or the other of the machine, while the current of surface water conveys the light grains to another side or end. They may be either side-bump, having the bump or jerk at right angles to the flow of water, or end-bump, having the bump or jerk in the opposite direction from the flow of the water. *See also* Rittinger, Bilharz, Wilfley, Bartlett, and Overstrom. (Liddell)

Bumping post. A post placed as a buffer at the end of a spur of railroad track. (Webster)

Bumping trough. A sheet iron trough hung from plugs so that it may be swung backward and forward and used for handling ore in stopes where the dip is such that the ore will not "run." (H. C. Hoover, p. 136)

Bump knocker. Local term at Spadra (Arkansas) for a person who picks down portions of machine-mined coal which have not been shot down by blasting. (Steel)

Bunch. 1. A small quantity of ore in a compact mass in the vein. (Whitney)
2. A portion of a pipe vein of greater thickness than the rest. (Standard)

Bunch of ore (Corn.). An ore body, usually a small one. (Raymond)

Bunchy. An ore body containing small scattered masses or bunches of ore. (Weed)

Bunchy reef (So. Afr.). A succession of blows, or outcrops, following a certain course (Power). *See also* Blow, 2 and 6.

Bunding. A staging of boards on stulls or stemples, to carry deads. *See also* Stull-covering. (Raymond)

Bunk. A frame attached to a wall or partition, which serves as a bed or sleeping place (Webster). Common in mining and lumber camps.

Bunker coal. A term applied to coal consumed by ocean steamers, tugs, ferry-boats, or other steam water craft (Nicolls). Also called Bunkers.

Bunker Hill screen. A rotating screen shaped like a funnel. Material is delivered inside the funnel, the undersize passing through the screen, while the oversize is discharged through the funnel neck. (Liddell)

Bunker plate. An iron plate covering a hole in a ship's deck leading to the coal bunker. (Century)

Bunkers (Wales). *See* Bunker coal.

Bunky (Ill. and Wis.). In metal mines, a partner; called Buddy in coal mines.

Bunney. *See* Bonny.

Bunning (Eng.). In lead mining, a floor or staging of wood built across the lode over the miners' heads, and on which the refuse was thrown, so that the mine, originally begun as an open work, became covered over for its whole length except the windlass opening (Century). Also spelled Bunding.

Bunter sandstone (Eng.). A sandstone at the base of the Triassic system in western Europe. (Cox)

Buntons. Timbers placed horizontally across a shaft. They serve to brace the wall-plates of the shaft-lining, and also, by means of plank nailed to them, to form separate compartments for hoisting or ladder-ways. (Ihlseng)

Buoy. To keep from sinking; to keep afloat in a liquid. A term used in flotation. (Rickard)

Buque (Mex.). A boy employed in a mine. (Dwight)

Bur; Burr. 1. A mass of flint rock in a softer rock. 2. A burrstone or buhr. (Standard)

Burbuja (Sp.). A bubble, bleb or blister. (Halse)

Burbusco (Panama). Extracting the rich ore; spoiling. (Lucas)

Burbusero (Panama). A spoiler (Lucas). *See also* Barequero.

Burden (Corn.). 1. The tops or heads of stream-work, which lie over the stream of tin. 2. The proportion of ore and flux to fuel in the charge of a blast-furnace. (Raymond)
3. Valueless material overlying the ore, especially such as is removed by stripping. Frequently called Overburden. (Webster)
4. The distance between the charge and the free face of the material to be blasted. (Du Pont)

Bure (Fr., Belg.). A coalpit. (Gresley)

Bureau. A department or office of the Government for the transaction of public business (Webster). As the Bureau of Mines.

Burette. An apparatus used in chemical laboratories for delivering measured quantities of liquid or gas. (Webster)

Burgy (Lanc.). Slack, or small coal. (Gresley)

Buried placers. Old placer deposits which have become buried beneath lava flows or other strata. (Shamel, p. 279)

Buried rivers. River-beds which have been buried below streams of basalt or alluvial drifts. (Duryee)

Burilada (Sp.). A sample chipped from silver bullion, to be assayed. (Halse)

Burk. A hard knot or lump in a vein. (Power). Possibly a corruption of burl which means a knot, lump or an excrescence.

Burleigh. *See* Rock drill.

Burmite. A fossil resin, resembling amber, but harder and tougher; it occurs in Upper Burma. (Bacon)

Burned. Said of slate or other impurity that adheres tightly to the coal. Similarly, coal is said to be "burned to the roof" when it is hard to separate the roof rock from the coal.

Burner; Burner man. A man who takes care of kilns for roasting ore, largely confined to plants roasting sulphur from Cornwall ores. (Willcox)

Burning. 1. Same as Calcining. *See also* Calcine. 2. (Derb.) An old method of working veins by softening them with fire. *See also* Firing, 3. (Mander)

Burning house. The furnace in which sulphide ores are calcined to sublime the sulphur; a kiln. (Century)

Burning mountain. A volcano. (Webster)

Burning oil. A common name for kerosene.

Burning point. The temperature at which a volatile oil in an open vessel will ignite from a match held close to its surface: formerly used to determine the safety of kerosene and other illuminants. (Standard)

Burnt alum. A white porous substance obtained by heating ordinary alum to dull redness, thus expelling the water of crystallization and some of the sulphuric acid. (Webster)

Burnt brass. Blue vitriol. (Webster)

Burnt coal (Scot.). Coal altered by an igneous rock intrusion (Barrowman). *See also* Natural coke.

Burnt copper. Copper oxide. (Webster)

Burnt-in. In ceramics, said of colors that have been applied under the glaze, and are fired with it. (Century)

Burnt iron. 1. Iron which by long exposure to heat has suffered a change of structure and become brittle. It can be restored by careful forging at welding-heat. 2. In the Bessemer and open-hearth processes, iron which has been exposed to oxidation until all its carbon is gone, and oxide of iron has been formed in the mass. (Raymond)

Burnt ore. Roasted ore.

Burnt stone. An antique carnelian such as is sometimes found in ancient ruins and has apparently been acted on by fire. (Century)

Burnt stuff. 1. (Mid.). Waste or refuse coal that has been thoroughly burned by spontaneous combustion. (Gresley)
2. (Aust.). An intensely hard, rocky stratum underlying the surface-soil. (Standard)

Burnt umber. *See* Umber.

Burr (Derb.). A hard knot or lump in a vein. A lump of ore that is harder than the vein itself (Hooson). Also spelled Bur; Burk.

Burrell gas detector. A device to obtain a safe, rapid and accurate determination for low percentages of methane inside the mine. Complete combustion of the methane takes place within the apparatus, and the percentage is measured volumetrically.

Burrero (Mex.). A donkey boy. (Dwight)

Burro (Mex.). A windlass; a donkey; a carpenter's horse. (Dwight)

Burrow (Corn.). A heap of refuse. (Raymond)

Burrstone. A cellular but very compact siliceous rock from which the best millstones are made (Standard). Also called Bur; Burr, and Buhrstone.

Burster; Bursting shot 1. (Scot.). A shot in a coal seam which has not been sheared or undercut. (Barrowman). Equivalent to "shot off the solid."
2. *See* Buster.

Bursting charge. A small charge of fine powder, placed in contact with a charge of coarse powder to insure the ignition of the latter. (Century)

Burst of whinstone (Scot.). A bed or mass of igneous rock at the surface of the ground. (Barrowman)

Burt filter. A stationary, intermittent filter in which the leaves are suspended vertically in a cylindrical vessel set on a considerable incline. The leaves are therefore ellipses. The slime cake is discharged by introducing air and water into the interior of the leaf. There is also a newer Burt filter of the continuous rotating-drum type. (Liddell)

Burthen (Scot.). The load of coal which the bearers carry on their backs. (Barrowman)

Burton. Any of several kinds of tackle, usually one with a single and double block. *See also* Tackle, 2. (Webster)

Bury (Ireland). Soft shale or clay; flucan. (Century)

Bus bar. A copper or aluminum conductor used in electric lighting or power stations to receive the current from all the dynamos, or distribute it to the motors, etc. (Century)

Busca. 1. (Mex.). A quantity of ore extracted by a *campero* or *buscón.* (Dwight)
2. (Sp.). A search.

Buscador. A searcher; an investigator (Vel.). (Min. Jour.).

Buscar (Sp.). To search for mines; to prospect. (Halse)

Buscón (Mex.). 1. A miner working in abandoned mines either to get and sell ore, or to obtain a reward for some valuable discovery. Prospector. *See also* Campero. (Dwight)
2. A petty robber. (Vel.)

Bushel. A measure of capacity, the imperial bushel, of 2218.192 cubic inches, and the Winchester bushel, of 2150.42 cubic inches, being divided into 4 pecks. The bushel used in measuring charcoal and coal contains 5 pecks, or 2688 cubic inches, being 20 pounds or less of charcoal, and, in various localities, 80, 76, or 72 pounds of coal (Raymond). The Winchester bushel is the standard for the United States.

Bush hammer. A hammer having a serrated face, as of rows of pyramidal points, for dressing stone.

Bushing. A pipe fitting for the purpose of connecting a pipe with a fitting of larger size, being a hollow plug with internal and external threads to suit the different diameters. (Nat. Tube Co.)

Bush metal. An alloy used for journals, bearings of shafts, etc. (Century)

Bustamente furnace. A cylindrical shaft furnace for roasting quicksilver ores; divided by perforated arches into two compartments, of which the upper receives the ore and the lower the fuel. The mercury-vapors are condensed in aludels. (Raymond)

Bustamite. A grayish-red variety of rhodonite containing lime. (Dana)

Buster (really **Burster**) (Eng.). A machine for breaking down coal, without the use of explosives. (Gresley)

Buster shot. Same as Breaking-in shot.

Bustle. 1. (York.) Hurry in mining or working coal, or in performing other colliery work. (Gresley)
2. A board put on the end of a car to keep coal on the car when going up or down a steep slope.

Bustle pipe. A large pipe surrounding a blast furnace, which receives the blast from the stoves and delivers it to the tuyères. (Tieman)

But (Scot.). Outwards; toward the shaft (Barrowman). Outbye.

Butracos (Sp.). Inclined shafts following the dip of lead and zinc lodes. (Halse)

Butt. 1. (Eng.). Of coal, a surface exposed at right angles to the face. *See also* End, 1. (Raymond)
2. The butt of a slate quarry is where the overlying rock comes in contact with an inclined stratum of slate rock. (Merrill)

Butt cleat. A short, poorly defined cleavage plane in a coal seam usually at right angles with the face cleat. *Compare* Face cleat.

Butte. A conspicuous isolated hill or small mountain, especially one with steep or precipitous sides. (Webster)

Butt-entry. The gallery driven at right-angles with the butt cleat. An end-on entry.

Butterfly. 1. The name applied to certain valves made after the design of a damper in a stove pipe. 2. In pumps this term signifies a double clack-valve whose flaps work on a diametral hinge, like the wings of a butterfly. (Nat. Tube Co.)

Butterfly valve. *See* Butterfly.

Butter of tin. Stannic chloride. (Standard)

Butters' filter. A stationary, intermittent vacuum filter. The leaves are arranged in a box having a pyramidal bottom. When the pulp is introduced a vacuum is applied until a cake from 1 to 2 in. in thickness is formed. The surplus pulp is then removed from the box and wash solution or water introduced and the cake washed. After removing the wash solution, either the box is filled with water, or the cake dropped and sluiced out. (Liddell)

Butt heading. *See* Butt entry.

Butt-joint. *See* Butt cleat.

Buttock (Eng.). That portion of a working face of coal, next to be taken down. (Gresley)

Buttocker (Eng.). One who breaks down the coal that has been undercut by the holers. A getter. (Redmayne)

Button. The globule of metal remaining on an assay-cupel or in a crucible, at the end of the fusion. (Raymond)

Button balance. A small, very delicate balance used for weighing assay buttons. (C. and M. M. P.)

Button metal. A variety of brass composed of one part copper and four parts zinc. (Webster)

Button solder. A white solder composed of tin, brass and copper, used as a substitute for silver solder in making buttons. (Century)

Butt shot. In coal mining, a charge placed so that the face or burden is nearly parallel with the bore hole. (Du Pont)

Button strike. A strike to compel every employee to join the union and to pay the dues regularly. On payment of dues, each man is given a button to wear on his hat.

Buttweld. Welded along a seam that is not scarfed or lapped. (Nat. Tube Co.)

Butty. 1. A comrade; a chum or partner. 2. (Eng.) In coal mining, one who takes a contract, or is a partner in a contract for working out a certain area of coal (Century). Also spelled Buddy.
3. (Mid.) A man who sorts and loads the coal, for which he is paid by the ton. Known as a Butty banksman. (Gresley)

Butty collier (Eng.). A foreman of a butty gang. (Standard)

Butty gang (Eng.). A company of men who undertake work by contract and divide the profits among themselves. (Standard)

Buttyman (York). A contractor who mines coal. *See also* Butty. (Gresley)

Buttyship (So. Staff.). The prevailing mode of working the "Ten-yard" coal seam. The contractor mines, loads, and delivers coal to place of sale, finding all tools, horses, skips, corn, candles, powder, pit beer, etc. The masters find timber, engine-power, and loaders at the boats. (Gresley)

Butty system (So. Staf., No. Staff., Mid.). The working of a pit or mine by contract. *See also* Buttyship. (Gresley)

Butyrellite. A white or yellow waxy substance found in certain of the Irish and Scotch bogs. (Bacon)

Buzamiento (Sp.). Hade, dip, inclination, slope. (Lucas)

Buzo (Colom.). Divers who get alluvial gold from the bottom of rivers with *bateas*. (Halse)

Buzón (Sp). 1. A funnel-shaped hopper. 2. A winze. 3. A subsidence of upper workings produced by a funnel-shaped cave of ground below. (Halse)

Byard. A leather breast strap used by miners in drawing carloads of ore or coal. (Standard)

Byat. *See* Biat.

Bye chains (Wales). Hauling ropes, or chains for dip inclined planes. (Gresley)

Byerite. A caking bituminous coal from Middle Park, Colo. It resembles albertite in the large amount of gas and oil which it yields upon distillation. (Bacon)

Byerlite. An artificial asphalt made from petroleum by driving off the volatile products. (Webster)

Bywork (Mid.). Odd work, or that which is paid for by the day, in connection with the underground roads. The men who perform it are called By-workmen. (Gresley)

By-lead. *See* By-wash.

By-level. A side level driven for some unusual but necessary purpose. (C. and M. M. P.)

By-pass; Bye-pass. 1. A short passage used to get by or around a place 't is not advisable to cross, *e. g.*, a mine shaft. (Power)
2. A small passage to permit equalization of the pressure on the two sides of a large valve so that it may be readily opened or closed (Nat. Tube Co.). An extra gas pipe passing around a valve or gas chamber used to prevent a complete stoppage of the flow of gas when the valve or chamber is closed. (Century)

By-pit. (Scot.). A pit nearer the outcrop than the engine pit; an air pit. (Barrowman)

By-product. A secondary or additional product (Webster). *e. g.* The more common by-products of coke ovens are gas, tar, benzol and ammonium sulphate.

By-product oven. A coke oven consisting of a series of long narrow chambers arranged in rows, and heated by flues in which are burned a portion of the combustible gases generated by the coking of the coal. All of the volatile products are saved and collected as ammonia, tar and gas, etc.

By-road (Scot.). A subsidiary road. (Barrowman)

Bysmalith. A name suggested by J. P. Iddings for an igneous intrusion that forms a huge cylindrical mass or plug, with length and width approximately the same, but of relatively great height. (Kemp)

Bysolite. An olive-green fibrous variety of amphibole. (Webster)

Bytownite. A plagioclase feldspar having a composition between labradorite and anorthite. (Dana)

By-wash. A channel cut to convey the surplus water from a reservoir or an aqueduct, and prevent overflow. Also called By-lead. (Century)

C.

Cab (Eng.). A hard ferruginous gouge or casing between the unaltered country rock and the ore. *See also* Casing, 2.

Caballeriza (Mex.). Stable. (Dwight)

Caballero (Sp.). A spoil bank. (Lucas)

Caballete (Mex.). Ridge-beam, trestle, etc. *C. de tension*, tension station of a cable tram. (Dwight)

Caballo (Sp.). 1. A miner's candlestick. 2. A rope sling for lowering men in a shaft. (Dwight)
3. A horse. 4. Barren rock in a lode or vein. 5. A grinding stone in an *arrastre*. 6. A cofferdam. (Halse)

Cabble. To break up into pieces (as charcoal iron) preparatory to the processes of faggoting, fusing and rolling into bars. (Century)

Cabecedo (Mex.). The end-line of a claim. (Dwight)

Cabeceira (Braz.). 1. A horizontal portion of a sluice. 2. A level heading. (Halse)

Cabecera (Mex.). "Heads" obtained in ore concentration. (Dwight)

Cabecilla. 1. (Sp. Am.). Slimes or sand in the washing trough. (Lucas)
2. Coarse ore which is reground.
3. In the *patio* process the residue after washing the *torta*. (Halse)

Cabeza. 1. (Mex.). Head or end.
2. *C. de ingenio* (Peru), the shaft of a vertical water-wheel. (Dwight)
3. (Colom.) The upper extremity of a placer mine. 4. (Mex.) An outcrop. (Halse)

Cabezada (Mex.). The end piece in shaft-timbering. (Dwight)

Cabezal (Mex.). A cap used in mine timbering. (Dwight)

Cabezón (Colom.). The point at which a current of water loses its velocity, and deposits the suspended material. (Halse)

Cabezuela (Mex.). Rich concentrates, usually containing both gold and silver. Mineral crushed to less than ¼ in. in diameter. (Dwight)

Cabin. A small room, either on the surface or underground, *e. g.*, a lamp cabin, or a deputy's cabin. (Power)

Cable. 1. Same as cable-laid rope; a fiber cable consists of three hawsers laid up left-handed. (C. M. P.)
2. A bundle of insulated wires, insulated by an outside wrapping, forming a water-proof electrical conductor, as a submarine cable. (Webster)
3. A steel rope for hoisting or for aërial trams.

Cable (Mex.). Cable or hoisting-rope; *C. de porte*, carrying rope; *C. de tracción, de motor, de móvil*, traction-rope; traveling-rope. (Dwight); *C. de cola*, tail rope; *C. rastrero*, haulage rope; *C. eléctrico*, electric cable or wires. (Halse)

Cable drill. *See* Churn drill.

Cable-laid rope. Wire cables made of several ropes twisted together, each rope being composed of strands twisted together without limitation as to the number of strands or direction of twist. A fiber cable-laid rope is composed of strands of hawser-laid rope, twisted right-handed. (C. M. P.)

Cable's length. The length of a ship's cable, usually about 600 feet, or one-tenth of a nautical mile. (Webster)

Cable system. One of the well-known drilling systems, sometimes designated as the American or Rope system. The drilling is performed by a heavy string of tools suspended from a flexible manila or steel cable to which a reciprocating motion is imparted by its suspension from an oscillating "walking beam." One end of the walking beam is above the mouth of the well when horizontal, and the other end is directly above a crank attached to the band-wheel shaft. (Mitzakis)

Cable tools. The apparatus used in drilling deep holes, such as artesian wells, with a rope, instead of rods, to connect the drill with the machine on the surface. (Raymond)

Cable-vía aéreo (Mex.). Aërial cable tramway. (Dwight)

Cabo (Mex.). 1. Handle. 2. Stump of candle. 3. Sub-foreman, or boss. (Dwight)

Cabocle. A compact rolled pebble resembling red jasper, supposed to be hydrous aluminum-calcium phosphate: found in the diamond-producing sands of Bahia, Brazil. (Standard)

Cabrerite. A hydrous arsenate of nickel, cobalt and magnesium, found in green crystals and in masses. (Dana)

Cabrestante (Mex.). Capstan; winch. (Dwight)

Caçamba (Braz.). The bucket of a gold dredge. (Halse)

Cache (Fr.). The place where provisions, ammunition, etc. are cached or hidden by trappers or prospectors in unsettled regions. (Raymond)

Cachetear (Mex.). To loosen a gad by striking it alternately on each side. (Dwight)

Cachi (Peru). A "Quechua" word, meaning salt; also applied to all kinds of white gangue-rocks. (Dwight)

Cacho (Colom.). A piece of horn used in gold washing (Halse). A horn spoon.

Cacholong. An opaque bluish-white or pale-yellow opal, containing a little alumina. (Dana)

Cachucha (Mex.). A miner's cap. (Dwight)

Caco (Braz.). A sugary quartz found in gold veins. (Century)

Cacoxenite. A hydrous phosphate of iron, $FePo_4Fe(Oh)_3+4\frac{1}{2}H_2O$, occurring in yellow or brownish radiated tufts. (Dana)

Cadena (Sp.). 1. Chain. A unit of linear measurement. (Dwight)
2. *C. de rocas*, a ledge or ridge of rocks. (Halse)

Cadge (Derb.). To attach the hoisting rope to an ore bucket; also to fasten tools in the bucket with a rope to prevent them falling out. (Hooson)

Cadger. A little, pocket oil can for miners. (Min. and Sci. Press, Aug. 28, 1915)

Cadmium. A tin-white, malleable, ductile metal, capable of a high polish and emitting a crackling sound when bent. Symbol, Cd; atomic weight, 112.40. Specific gravity, 8.6. (Webster)

Cadmium ochre. The mineral greenockite. (Standard)

Caducar (Mex.). To forfeit a title through noncompliance with the stipulations contained therein. (Dwight)

Caducidad (Mex.). The act of forfeiting a title, etc. (Dwight). *See also* Caducar.

Caen stone. A light cream-colored Jurassic limestone, chiefly from Caen, Normandy, largely used in carved architectural work. (Standard)

Caer de cruz (Mex.). The beginning of the action of the quicksilver in the process of amalgamation. (Dwight)

Caesium. A soft, silvery metal, closely resembling rubidium and potassium. Symbol, Cs; atomic weight, 132.81. Specific gravity 1.84 (Webster)

Cage. 1. A frame with one or more platforms for cars, used in hoisting in a vertical shaft. It is steadied by guides on the sides of the shaft. 2. A structure of elastic iron rods slipped into the bore-hole in rod-boring to prevent vibration of the rods. 3. The barrel or drum of a whim on which the rope is wound. (Raymond)

Cage cover (Scot.). The iron sheets fixed above a cage to protect its occupants (Barrowman). A hood. *See also* Bonnet, 1.

Cage guides. 1. Vertical pieces of wood, iron, or steel, fixed in a shaft, between which cages run, and whereby they are prevented from striking one another, or against any portion of the shaft. (Steel)
2. (Scot.) Shoes, usually cast iron, clasping the guides (*see* Cage guides, 1) in a shaft and guiding the cage in its movements in the shaft. (Barrowman)

Cage iron. In foundry practice a core iron resembling a cage. (Webster)

Cage of a whim (Corn.). The barrel on which the rope is wound (Min. Jour.). A drum.

Cager. 1. The person who puts the cars on the cages at the bottom of the mine shaft, or at intermediate landings. (Steel) *See also* Top cager.
2. One who supervises weighing, and the sequence of sending up components of a furnace charge, keeps tally of the number of charges and signals to top filler when it is time to hoist. (Willcox)

Cage seat. Scaffolding, sometimes fitted with strong springs, to take the shock, and on which the cage rests when reaching the pit bottom, or other landing (Steel). *See* Cage shuts.

Cage shuts. (Som.). Short props or catches upon which cages stand during caging (Gresley). Called Fallers in Lancashire. *See also* Chairs; Dogs; Cage seat.

Cage tail-chain (Scot.). A chain fastened to the bottom of the shaft cage to haul a car out of a short dip road. (Barrowman)

Cage-tender. *See* Cager, 1.

Cageway. A cage guide, or the part of a shaft containing the guides. (Standard)

Caging (No. Staff.). The operation of changing the tubs or cars on a cage. (Gresley)

Caída (Mex.). A fall of ground. (Dwight)

Caimán (Mex). 1. An oreshoot. 2. A Stillson wrench. (Dwight)

Cainozoic; Cenozoic. Containing recent forms of life: applied to the latest three divisions into which strata have been arranged with reference to the age of the fossils they include. It includes the Tertiary and Post-tertiary of the British geologists. (Century)

Cairn; Carn (Gaelic). A mound or heap of stones erected for a memorial or mark, as a sepulchral monument, or a landmark, or to indicate the site of a cache. (Standard)

Cairngorm. A yellow or smoky brown variety of quartz found at Cairngorm, Scotland. (Webster)

Caisson. A water-tight box or chamber within which submarine construction is carried on under great air pressure to keep the water out (Webster). Used also in excavating for foundations in the presence of great quantities of water.

Caisson disease. A disease frequently induced by remaining for some time in an atmosphere of high pressure, as in caissons, diving bells, etc. Characterized by neuralgic pains and paralytic symptoms (Webster). Also called Bends.

Caja (Mex.). 1. Case; box; water-jacket of furnace; housing of crusher; *C. chica*, furnace-tap jacket; *C. fundida*, *C. quemada*, a burnt-out furnace-jacket. (Dwight)
2. (Sp.). Wall of a vein. 3. The inclosure of a deposit between walls, or between the roof and floor. (Halse)

Cajete (Mex.) A masonry basin to receive the pulp from an arrastre. (Dwight)

Cajón (Peru). 1. Box; caisson. 2. Load of about 3 tons (variable in different localities). 3. Shoot. 4. Drain. 5. *C. del tiro*, shaft-compartment. (Dwight)
6. *C. de granzas* (Mex.), the pit to receive the crushed ore. 7. *C. inclinado* (Sp.). A buddle; an inclined table. (Halse)
8. (Sp.) In the southwestern United States, a cañon or narrow gorge with steep sides; a box gorge. (Standard)

Cajonero. (Sp.). The man who receives, registers and distributes the mine cars at the shaft mouth. (Dwight)

Cake. 1. The solid residue left in a filter press after the solution has been drawn off. (Clennell)
2. *See* Cake of gold. 3. To form in a mass as when ore sinters together in roasting, or coal cakes together in coking. (Duryee)

Cake copper. *See* Tough cake.

Cake of gold. Gold formed into a compact mass (though not melted) by distillation of the mercury from amalgam. Also called Sponge gold.

Cakes of ore. Flat masses of ore. (Morine)

Caking coal. *See* Coking coal.

Cal (Mex.). Lime; *C. apagada*, slaked lime; *C. viva*, quick or unslacked lime; *C. en piedra*, limestone or chalk. (Halse)

Cal (Corn.). Wolframite; tungstate of iron and manganese (Whitney). Frequently associated with tin ore.

Cala (Sp.). Prospecting-pit (Dwight). *See also* Cata.

Calabashing (Nigeria). Panning metalliferous gravel with a calabash, or gourd. (Skinner)

Calabrote (Mex.). A rope of large diameter. (Dwight)

Calaite. The mineral turquois. (Humble)

Calamaco (Mex.). Large piece of rock, difficult to break up. (Dwight)

Calamin. To apply to (pottery) a wash made from the pigment calamine. (Standard)

Calamina (Sp.). Dry bone; smithsonite (Lucas). *See also* Calamine.

Calamine. 1. A commercial, mining and metallurgical term comprising the oxidized ores of zinc, as distinguished from the sulphide ores (blendes). Used also by mineralogists as the name of mineral species, American mineralogists commonly calling the hydrous silicate of zinc, $H_2O.2ZnO.SiO_2$, by this name, but inasmuch as British mineralogists call the anhydrous carbonate, $ZnCO_3$, by the same name, some authorities advocate discontinuance of the use of the name for distinct mineral species and the confinement of its use to a class of ores, which was the original use and still is the commercial and technical use. (W. R. Ingalls, Trans. A. I. M. E., vol. 25, p. 17.)
2. A special kind of so-called galvanized iron. Spelled also Kalamin. (Standard)

Calamine stone (Eng.). A carbonate of zinc (Roberts). More properly, Smithsonite.

Calamita (Sp.). 1. Loadstone. 2. A compass needle. 3. Siderite or spathic iron ore. (Halse)

Calamite. 1. An asparagus-green variety of tremolite. (Standard)

Calaverite. A telluride of gold and silver, (Au. Ag) Te_2. Variable in composition, but contains about 39.5 per cent gold and 3.1 per cent silver. (U. S. Geol. Surv.)

Calcaire (Fr.). Limestone. (Standard)

Calcaire grossier (Fr.). An extensive coarse limestone stratum, or rather series of strata, found in the Paris Basin, belonging to the Eocene series. (Comstock)

Calcaphanite. A variety of diabase, with small kernels of calcium carbonate embedded in the green ground mass. (Webster)

Calcar. 1. Kind of oven, or reverberatory furnace used in the manufacture of glass for calcination of the batch into a frit. 2. An annealing arch or oven. (Webster)

Calcar (Mex.). To make a tracing of a drawing. (Dwight)

Calcarenite. A name suggested by A. W. Grabau for a "limestone or dolonite composed of coral or shell-sand or of calcic sand derived from the erosion of older limestones." The name is from Latin for lime and sand. (Kemp)

Calcáreo (Mex.). Calcareous. (Dwight)

Calcareous. Consisting of or containing carbonate of calcium. (Webster)

Calcareous grits. Sandy beds, intermixed with calcareous matter. (Hitchcock)

Calcareous sandstone. A sandstone containing a considerable proportion of calcium carbonate. (Bowles)

Calcareous spar. Crystallized carbonate of calcium. *See also* Calcite.

Calcareous tufa. A spongy, porous or vesicular deposit of calcium carbonate. When the carbonate of calcium is deposited in a solid form it is called travertine or calc-sinter. Stalactites and stalagmites are of this nature. (Roy. Com.)

Calcarone (Italy). A kiln used in Sicily in which sulphur is separated from the crude ore by heat. (Standard)

Calcedonia (Mex.). Chalcedony. (Dwight)

Calcedony. *See* Chalcedony.

Calcic. Of, pertaining to, or containing calcium. Said especially of minerals, particularly feldspars, of which calcium is an important constituent, and of igneous rocks which are characterized by the presence of such minerals. (La Forge)

Calciferous. Bearing, producing, or containing, calcite, or carbonate of calcium. (Webster)

Calcify. To make or become hard or stony by the deposit of calcium salts. (Standard)

Calcigenous. Forming a calx: said of certain metals. (Standard)

Calcilutite. A name suggested by A. W. Grabau for a limestone or dolomite made up of calcareous rock flour, the composition of which is typically nonsiliceous, though many calcilutites have an intermixture of clayey material. The word is from the Latin for lime and mud. (Kemp)

Calcin (Mex.). A roasting-furnace. (Dwight)

Calcina (Sp.). Concrete. (Halse)

Calcinable. Capable of being calcined or reduced to a friable state by the action of fire. (Century)

Calcinar (Mex.). To calcine or roast. (Dwight)

Calcination. The reduction of ore or other material to a calx or friable condition by the action of fire (Hitchcock). *See also* Calcine.

Calcinatory. *See* Calciner.

Calcine. To expose to heat, with or without oxidation; to roast. Applied to ores for the removal of water and sulphur, and the disintegration of the mass; to limestone for the expulsion of its carbon dioxide; etc. (Raymond)

Calciner. A furnace or kiln for roasting. (Raymond)

Calcining furnace. A furnace used for roasting ore in order to drive off certain impurities. (C. and M. M. P.) Also called Calciner.

Calcio (Sp.). Calcium. (Dwight)

Calciocelestite. A variety of celestite containing calcium. (Standard)

Calciovolborthite. A vanadate of copper and calcium. Contains about 38 per cent V_2O_5. (U. S. Geol. Surv.)

Calcirudite. A name suggested by A. W. Grabau for a "limestone or dolomite composed of broken or worn fragments of coral or shells or of limestone fragments, the interstices filled with calcite, sand, or mud, and with a calcareous cement." The word is derived from the Latin for lime and rubble. (Kemp)

Calcite. Hexagonal (rhombohedral) calcium carbonate, the more common form of $CaCO_3$. Contains 56 per cent lime, CaO. (U. S. Geol. Surv.)

Calcitrant. Refractory (Webster). Said of certain ores.

Calcium. A silver-white, rather soft metal of the alkaline earth group. Symbol, Ca; atomic weight, 40.07. Specific gravity, 1.56. (Webster)

Calcium carbide. A crystalline solid, CaC_2, colorless when pure, but often resembling gray limestone. It is made by heating lime and carbon together in the electric furnace, and is used for the generation of acetylene (Webster). Used in miners' lamps.

Calcium carbonate. A solid, $CaCO_3$, occurring in nature, as calcite, etc. (Dana)

Calcium chloride. A compound, $CaCl_2$, crystallizing usually with six molecules of water. (Webster)

Calcium fluoride. The compound, CaF_2, occurring in nature as fluorite. (Webster)

Calcium hydroxide. Slaked lime, $Ca(OH)_2$. (Webster)

Calcium phosphate. *See* Apatite.

Calcium sulphate. *See* Anhydrite; Gypsum.

Calco (Mex.). A tracing on cloth or paper. (Dwight)

Calcomalachite. A form of malachite containing calcite and gypsum; used as an ornamental stone. (Webster)

Calc-schist. A schistose rock, rich in calcite or dolomite, forming intermediate or transitional rock between the mica-schists and crystalline limestones. (Kemp)

Calc-sinter. Limestone deposited from springs and waters containing it; travertine (Hitchcock). Also called Calcareous tufa.

Calc-spar. A synonym for Calcite. (A. F. Rogers)

Calc-tufa (Corn.). A spongy or porous deposit of carbonate of calcium. *See also* Calcareous tufa.

Calculiform. Pebble-shaped. (Webster)

Caldear. 1. (Mex.). To glow with heat. (Dwight)
2. (Sp.). To heat a furnace; to weld. (Halse)

Caldera. 1. A very large crater produced by a gigantic explosion. 2. A crater produced by the fusion of the core of a volcano and the falling in of its summit. (Webster)
3. (Sp.). A kettle or caldron. *C. de vapor*, a steam boiler. 4. A winze. 5. The bottom of a shaft; a sump. (Halse)

Calderista; Calderero (Mex.). 1. A boiler-maker. (Dwight)
2. A blacksmith. (Halse)

Calderite. A variety of garnet. (Standard)

Caldron bottom (Eng.). The fossil root of a tree or fern lying on the roof of a seam of coal. It derives its name from the resemblance to the bottom of a caldron or pot. *See* Bell-mold; *also* Cauldron.

Cale (Mid.). A specified number of tubs taken into a working place during the shift. (Gresley)

Calecero (Mex.). A man who rides on hoisting-cage and gives the signals. (Dwight)

Caledonite. A green basic sulphate of lead and copper of uncertain composition. (U. S. Geol. Surv.)

Calentadura (Mex.). 1. The first bar of lead treated by a lead-refining furnace. (Dwight)
2. Putting a furnace into blast, or the first heating of a furnace (Halse). "Blowing-in" a furnace.

Calentar los cuerpos. 1. (Peru) The turning yellow of mercury in patio-amalgamation. (Dwight)
2. (Sp.) *C. un horno*, to blow in a furnace, or to put a furnace into blast. (Halse)

Calera (Mex.). Limekiln; calcining furnace. (Dwight)

Calero (Mex.). Lime burner; roaster-man. (Dwight)

Calesa (Mex.). Buckets for ore or water. (Dwight)

Caliber. The inner diameter or bore of a tube or pipe. (Nat. Tube Co.)

Calibrate. 1. To determine the caliber of, as the interior of a thermometer-tube. 2. To determine the relative value of the different parts of an ordinary scale. (Century)

Calicanto. 1. (Mex.) Masonry work.
2. Auriferous conglomerate in Chuquibamba, Peru. (Dwight)

Calicata (Sp.). A digging or trial pit. (Raymond)

Calichal (Mex.). Second-class silver-ore (carrying from 150 to 1000 oz. per ton) (Dwight). At Pachuca, Hidalgo, the best or first-class ore separated in the mine, the second-class being known as *azogues*. (Halse)

Caliche. 1. (Chile and Peru). Impure native nitrate of soda. 2. (Uco, Peru) A thin layer of clayey soil capping auriferous veins. 3. (Chile) Whitish clay in the selvage of veins. 4. (Mex.) Feldspar; a white clay. 5. (Mex.) A compact transition limestone. 6. (Colom.) A mineral vein recently discovered. 7. (Colom.) In placer mining, a bank composed of clay, sand and gravel. (Halse) 8. (Mex. and Southwest U. S.) Gravel, sand, or desert débris cemented by porous calcium carbonate; also the calcium carbonate itself.

Calichera (Chile). A deposit of *caliche*. (Halse)

Calicheros (Sp.). Lime burners. (Min. Jour.)

Calico marble. A local name for a Triassic conglomerate used in the columns of the old Chamber of Representatives in the Capitol at Washington. The source is Frederick County, Md. (Merrill)

Caliente (Mex.). Hot. The condition when mercury flours in amalgamation. (Dwight)

Calientes (Mex.). Silver ores, generally *colorados*, 1, with some sulphate of iron, the result of decomposition. (Halse)

Californian onyx. A dark amber-colored and brown aragonite, used in ornamentation. (Standard)

California pump. A rude pump made of a wooden box through which an endless belt with floats is operated; used for pumping water from shallow ground. (C. and M. M. P.)

Californite. A compact, massive vesuvianite. Used as an ornamental stone. (U. S. Geol. Surv.)

Caling (Mid.). Conveying tubs into the stalls out of turn—irregularly—so that each miner is not supplied with an equal number during the day. (Gresley)

Caliper; Calliper. An instrument with two legs, usually bent, fastened together with a hinge or spring, used for determining the thickness or diameter of objects, distance between surfaces, etc. (Webster)

Caliza; Piedra caliza (Mex.). Limestone. (Dwight)

Calk. 1. To drive tarred oakum into the seams between planks and fill with pitch. 2. A sharp-pointed piece of iron or steel projecting from the bottom of a horseshoe (Webster)

3. In metal working, to strike a chisel,. or calking tool with a hammer, making a slight indentation along the seam. The effect of this is to force the edge of one plate hard against the other, and thus fill up any slight crevice between the plates which the rivets failed to close.

Calking tool; Calking iron. A blunt-ended chisel used in calking. *See also* Calk, 1 and 3.

Callainite. An apple- to emerald-green massive wax-like aluminum phosphate, $AlPO_4+2\frac{1}{2}H_2O$. (Dana)

Callais. A precious stone of greenish-blue color, probably turquoise, referred to by Pliny, 77 A. D. (Pliny History, Bk. 37, 151). Dana uses this is a synonym of callainite, an emerald-green, hydrated aluminum phosphate.

Callapos (Peru). Rude wooden steps at the mouth of a mine. (Dwight)

Callen; Kallen. Irony; especially used when a lode is rich in soft iron ocher. (Power)

Caller (No. of Eng.). A miner who goes round the villages about two hours before work commences, to call the men who examine the mine in the morning before the miners enter. (Gresley)

Calley-stone (York.). In coal mining, a kind of hard sandstone, more or less argillaceous (Century). *See also* Ganister, 3.

Calliard; Galliard (No. of Eng.). A hard, smooth, flinty grit-stone. (Gresley)

Callimus. Loose, stony matter found in the cavities of eaglestone. (Standard)

Calling course (Eng.). The time for the men to go to work (Bainbridge). *See also* Caller.

Callow. 1. The baring or cover of open workings. (Gresley)
2. The stratum of soil over the subsoil; the top or rubble bed of a quarry. 3. Low-lying marshy land. (Webster)

Callow cone. A conical settling tank with vertical central feed, peripheral overflow, annular launder to collect and convey away the overflow, and a spigot in the form of a gooseneck to discharge the tailings. (Liddell)

Callow process. A flotation process embodying the usual principles but in which agitation is secured by air forced into the pulp through the canvas-covered bottom of the cell. (Megraw, p. 18)

Callow screen. A classifying screen using the traveling-belt principle, the screen cloth forming the belt member. It passes over two drums, or pulleys, oversize being discharged while the belt travels under the drums. (Liddell)

Callys (Corn.). *See* Killas.

Calm; Caulm (Scot.). White or light colored blaes. (Barrowman). *See also* Blaés.

Calomel. Horn quicksilver. Mercurous chloride, Hg_2Cl_2, containing 85 per cent mercury. (Dana)

Calor de frio (Mex.). In the *patio* process, steam issuing from the ore mixture, especially in cold weather.

Calorie. The amount of heat required to raise the temperature of one gram of water one degree centigrade at or near the temperature of maximum density. Called Small calorie. (Webster)

Calorifics. The science of heat. The technics of artificial heating. (Webster)

Calorimeter. 1. Any apparatus for measuring the quantity of heat generated in a body or emitted by it, as by observing the quantity of a solid liquified, or of a liquid vaporized, or the amount of heat absorbed by a certain quantity of water, under given conditions. 2. The combined area of cross-section of smoke flues or passages, as in a locomotive boiler.

Calp (Ir.). A bluish-black to grayish-blue limestone found in Ireland. (Standard)

Cal viva (Sp.). Quicklime. (Min. Jour.)

Calx. 1. Lime. 2. The friable residue left when a metal or mineral has been subjected to calcination. Metallic calxes are now called oxides. 3. Broken and refuse glass returned to the pots. (Webster)

Calyx. A long cylindrical vessel of the same diameter as the core-barrel, which guides the bit, and receives the débris resulting from the action of the cutter. Its action is not unlike that of the diamond drill and necessitates the use of a powerful water flush. The cutter, which

takes the place of the diamond crown, has a number of long teeth which produce a chipping action when rotated by hollow flushing rods in the presence of a constant flow of water. Used in a system of oil-well drilling, originating in Australia. The great advantage of this system is that a core is extracted and preserved in a core-barrel and brought to the surface. (Mitzakis)

Calza. 1. (Mex.). A shim; liner. (Dwight)
2. A stone for scotching a wheel. 3. (Chile). A converter lining. 4. (Arg.) Lagging. (Halse)

Calzar (Mex.). To sheath or face with metal. To shim; to tamp. (Dwight)

Cam. A rotating piece, either noncircular or eccentric: used to convert rotary into reciprocating motion: often of irregular outline, and giving motion that is irregular in direction, rate, or time. (Standard) In stamp mills the cam projects from a revolving horizontal shaft and raises the stamp by catching the lower surface of the tappet or collar surrounding the rod on which the stamp-head is hung. The upper side of the cam has an easy curve, such as a parabola, so that when it strikes the tappet it may not jar it when the lifting movement begins. (Roy. Com.) Sometimes called Lifter or Wiper.

Cambay stone. A variety of carnelian from Cambay, India.

Cambiar (Mex.). To switch. (Dwight)

Cambiavia (Mex.). A turntable; a man who operates switch. (Dwight)

Cambio. 1. (Mex.). Switch. (Dwight) 2. (Sp.). Alteration, change. 3. *C. de naturaleza,* variation in the quantity and class of material forming a sedimentary deposit. *C. de potencia,* change in the thickness of a deposit. (Halse)

Cambrian. The oldest of the systems into which the Paleozoic stratified rocks are divided; also the corresponding geologic period. (La Forge)

Cameo. A gem carved in relief, from onyx, sardonyx, a shell or other material usually having layers of different colors. (Webster)

Cameo ware. Fine pottery with figures in relief of a different color from the ground, as jasper ware (Standard. *See also* Wedgewood ware.

Camino. 1. (Mex.) A road; a gallery or shaft in a mine used for general traffic. 2. *C. de hierro,* a railway; a railroad. (Halse)

Cammett table. *See* Wilfley table.

Camoien (Fr.). *See* Cameo.

Camón. 1. (Mex.) The iron tire of mill-wheel. (Dwight)
2. (Mex.) A section or segment of a crown wheel of a Chilean mill. 3. Pine boards forming the side of an arrastre. (Halse)

Camp. A mining town. (Weed)

Campaign. The period during which a furnace is continuously in operation. (Raymond)

Campan marble. A beautiful pale, yellowish-green stone mottled with white. A dark-green variety containing red blotches is known as Campan rouge. (Merrill)

Campana. 1. (Mex.) A bell. *See* Capellina; *also* Campanilla. (Dwight) 2. (Sp. Am.) Nonproductive ground. (Lucas)

Campanela (Mex.). An upper drill hole. (Dwight)

Campanero (Mex.). A bellman, or station tender. (Dwight)

Campanil (Sp.). Compact red hematite. (Halse)

Campanilla (Sp.). A bell-signaling apparatus. (Halse)

Camper (Scot.). Coal slightly altered by whin; dirty coal. (Barrowman)

Campero (Mex.). The foreman in charge of *Campos.* A miner working on tribute. (Dwight)

Campistas (Sp.). Tributers. (Min. Jour.)

Campo. 1. (Mex.) A limited lease of a small section of ground in a mine. 2. A mining camp. *See also* Real, 1. (Dwight)
3. (Braz.) Undulating table-land. 4. (Mex.) A mine-working in possession of *buscónes.* (Halse)

Camptonite. A name given by Rosenbusch to certain dike rocks at Campton, N. H., having in typical cases the mineralogical composition of diorites, *i. e.,* with dark-brown hornblende, plagioclase, magnetite, and more or less augite. They are often porphyritic in texture, and may even have a glassy groundmass. Without the microscope camptonites usually appear as dark basaltic rocks with a few shining crystals of hornblende or augite; their determination is essentially miscroscopic. (Kemp)

Campylite. A yellowish to brown variety of mimetite crystallizing in barrel-shaped forms. (Dana)

Cam shaft. In stamp milling, a strong horizontal revolving shaft to which a number of cams are attached in such a manner that no two of them shall strike the tappets at the same instant, distributing the weight to be lifted. (Winchell)

Camstone. 1. A compact, whitish limestone. 2. A bluish-white clay used for whitening purposes. (Standard)

Cañada (Sp.). A ravine, or small cañon. (Raymond)

Canadian pole system. A system of oil-well drilling differing from the American cable system, in that wooden rods screwed together are used instead of a rope. The Canadian pole is a useful all-round prospecting rig, and it is particularly suitable for regions where excessive caving makes it necessary to have some positive method of rotating the bit. (Mitzakis)

Canadol. A light petroleum ether of the specific gravity 0.650–0.700, which has been used for the production of local anesthesia by spraying, and as a solvent. (Bacon)

Canal. 1. (Mex.) Channel. Spout; *C. de humo*, a flue. 2. *C. del oro*, a gold-bearing channel. (Halse)

Canales (Sp.). Deposits of manganiferous oxide of iron, formed by filling crevices in limestone, and conformable to its stratification. (Halse)

Canalistas (Braz.). Gold dredging men who work in the channel. (Halse)

Canalón (Colom.). A ground sluice used in placer mining; a channel; a sluice. (Halse)

Canary ore. A yellow earthy argentiferous lead ore, generally pyromorphite, bindheimite, or massicot, more or less impure. (Power)

Canary stone. A somewhat rare yellow variety of carnelian. (Power)

Canasta (Mex.). A basket. (Dwight)

Canastillo (Mex.). A tramway-bucket. (Dwight)

Canch. 1. A part of a bed of stone worked by quarrying. (Raymond) 2. (No. of Eng.). That part of the roof of an underground roadway which has to be taken down, or of the floor to be broken up, in order to equalize the grade of the road. If above a seam, it is termed a Top canch; if below, a Bottom canch. Also spelled Caunche, Caunch. (Redmayne)

Cancha. 1. (Sp.) . A place for drying slimes or sorting ore. (Dwight) 2. (Peru). A mine dump. (Pforte)

Canchero (Peru). A person in charge of dumping and sorting of ores. (Dwight)

Cancrinite. A silicate and carbonate of sodium, calcium and aluminum $H_8Na_6Ca(NaCO_3)_2Al_3(SiO_4)_9$. (Dana) The name of the mineral is sometimes prefixed to the names of rocks containing it, as cancrinite syenite. (Kemp)

Cand (Corn.). Fluorspar, or fluorite occurring as a vein stone; called by the Derbyshire miners, Blue-john (Century). Also spelled Cann, Kann.

Candeias (Braz.). A miner's lamp. (Bensusan)

Candelero. 1. (Sp.). A candlestick. 2. (Peru). That part of drill hole remaining after blasting. 3. (Mex.). A piece of clay on which retort silver is laid for final heating. (Dwight)

Candil (Mex.). An oil lamp. (Dwight)

Candle coal. *See* Cannel coal.

Candle-power. Illuminating power, as of a lamp, or gas flame, reckoned in terms of the standard light of a candle (Webster). The British standard candle is defined as a sperm candle, that burns at the rate of 120 grains of sperm per hour. (Century)

Cañería (Sp.). A water pipe; an aqueduct. *C. de descarga*, water discharge. (Lucas)

Canfieldite. A metallic black-blue silver-tin-germanium sulphide ($Ag_8(Sn,Ge)S_6$) that crystallizes in the isometric system. (Standard)

Canga (Braz.). A kind of auriferous glacial rock; in reality an iron breccia. Also applied to a brown porous conglomerate. (Halse)

Cangalla (Chile). Stolen ore. (Halse)

Cangalli (Bol.). A ferruginous quartz conglomerate. (Halse)

Cangáua (Sp.). A South American term for the volcanic mud of the Quitenian Andes. (Page)

Cangrejeros (Colom.). Bunches or small pockets of gold occurring in veins. (Halse)

Canister. 1. (Aust.). A tin for holding blasting powder. 2. A hopper-shaped truck, from which coal is discharged into coke ovens. (Power)

Cank; Cankstone (Derb., Leic.). *See* Burr; Whin; Whinstone.

Canker. 1. (Eng.). The ocherous sediment in mine waters, being bicarbonate of iron precipitated by the action of the air. (Gresley)
2. Rust; verdigris or copper rust.
3. To rust, to corrode, to oxidize. (Webster)

Cann (Corn.). *See* Cand.

Cannel. *See* Cannel coal.

Cannel coal. A massive, noncaking, tough, clean, block coal of fine, even, compact grain, dull luster, commonly conchoidal cross fracture, having a typical low-fuel ratio, a high percentage of hydrogen, easy ignition, long yellow flame, black to brown greasy streak, and moderate ash, pulverulent in burning. It is essentially a rock derived by solidification and partial distillation or oxidation of water-laid deposits consisting of or containing large quantities of plant spores and pollen grains and more or less comminuted remains of low orders of water plants and animals. There may be admixed greater or less quantities of mud, woody or peaty material. (U. S. Geol. Surv. Bull. 659, p. 8) This word is derived from *Canwyl*, meaning a candle, from the readiness with which the coal ignites and gives off a steady flame. (Gresley)

Cannes marble. *See* Griotte marble.

Cannon-ball mill. A mill for grinding tough materials by attrition with cannon balls in a rotating drum or chamber (Standard). *See also* Ball mill.

Cannonier (Fr.) *See* Fireman.

Cannon shot. *See* Blown-out shot.

Canny (Corn.). Applied to lodes containing calcium carbonate and fluorspar (Power). *See* Cand.

Canoa (Braz.). A platform used in gold-washing. (Lock)

Cañon. 1. (Sp.) A valley, usually precipitous; a gorge (Raymond). Also spelled Canyon.
2. (Mex.). A mine-level drift or gallery. *C. de guia,* a drift along the vein. (Dwight)
3. (Sp.). An inclined flue; *C. de chimenea,* a flue or smokestack. (Halse)

Cant. 1. To slip or turn over to one side. (Gresley)
2. An inclination from a horizontal, vertical, or other given line; a slope or bevel; a tilt. (Webster)

Cant dog (Eng.). A handspike with a hook. A cant hook. (Century)

Canteen. A metal, wooden or leather vessel or flask of small capacity, used by soldiers, travelers, or workmen for carrying water or other liquid. (Webster)

Cantera. 1. (Sp.). A stone quarry.
2. (Mex.). An unstratified stone of volcanic origin, as an andesitic tuff, andesitic breccia; also a metamorphosed quartz-porphyry; a white-banded porphyry. 3. (Chile). A light, sandy tuff. 4. (Venez.) Small quartz veins which are detached from the principal veins. (Halse)

Cantero (Sp.). Stone mason; quarryman. (Min. Jour.)

Cantharid luster. A ceramic luster having green and blue irridescence like that of a Spanish fly. (Standard)

Cant hook. A wooden lever with a movable iron hook at the end used for canting or turning over logs. (Webster)

Cantle piece. A side piece in a cask head. *See* Cants. (Webster)

Canto (Mex.). The narrowest face of a timber. (Dwight)

Cantonite. A variety of covellite that occurs in cubes. (Standard)

Cants (Eng.). The pieces forming the ends of buckets of a waterwheel (C. and M. M. P.). *See also* Cantle piece.

Canturrón (Colom.). Oxide of manganese. (Halse)

Cañuela (Mex.). A fuse. (Dwight)

Canvas. Any strong cloth of cotton, hemp, or flax. A miner's name for brattice cloth.

Canvas tables. Inclined rectangular tables covered with canvas. The pulp, to which clear water is added if necessary, is evenly distributed across the upper margin. As it flows down, the concentrates settle in the corrugations of the canvas. After the meshes are filled, the pulp feed is stopped, the remaining quartz is washed off with clear water, and finally the concentrates removed (by hose or brooms). (Liddell)

Canyon. *See* Cañon.

Cap. 1. A piece of plank placed on top of a prop or stull. 2. The blue halo of ignited fire damp which shows above the yellow flame of a safety lamp when in air containing small quantities of fire damp. The percentage of fire damp can be roughly measured by the height of the cap. (Steel)
3. (So. Afr.) A mine when the vein matter is barren or when the vein is *pinched*, or contracted, is said to be "in cap." (Skinner)
4. Rock above coal or ore. *See also* Cap rock. 5. An attachment riveted on the end of a rope to which a chain may be fastened. (Gresley)
6. A fitting that goes over the end of a pipe, to close it, producing a dead end. (Nat. Tube Co.)
7. *See* Blasting cap.

Capa (Mex.). A flat deposit of ore or capping of lava, clay, etc.; stratum. (Dwight)

Capacho (Peru). A large leather bag having a capacity of 75 to 150 pounds of ore. (Pfordte)

Capacity of air compressor. The actual amount of air compressed and delivered, expressed in terms of free air at intake temperature and at the pressure of dry air at the suction. The capacity of an air compressor should be expressed in cubic feet per minute. (A. I. M. E., Bull. 140, p. lvii)

Caparrosa (Sp.). Copperas, the result of decomposition of pyrite, marcasite, or pyrrhotite (Halse). *See also* Alcaparrosa.

Capataz (Sp.). Foreman; overseer; captain. (Lucas)

Cap board. Same as Cap, 1. (Steel)

Cap crimper. *See* Crimper.

Cape diamond. A diamond of yellowish tinge. (Webster)

Capel; Kapel. 1. (Corn.). A composite stone of quartz, schorl, and hornblende (Raymond). *See* Caple. 2. A wall of a lode: so called by Cornish miners, and chiefly when the country closely adjacent to the lode itself has been more or less altered by those chemical agencies under the influence of which the latter was formed. Also called Cab. In the United States, Casing is sometimes used synonomously. (Century)

Capela (Mex.). A strap passing over a man's shoulders from handles of a wheelbarrow. (Dwight)

Capella (Sp.). A cupelling furnace. (Raymond)

Capellina (Mex.). In the *patio* process, the bell-shaped vessel, *campana*, of copper or iron beneath which the amalgam is distilled (Halse). *See* Piña, 1.

Capel lode (Corn.). A lode composed of hard unpromising felspathic minerals containing minute particles of chlorite (Power). *See also* Capel.

Cape ruby. A ruby-red garnet found associated with diamonds in the South African diamond mines. (Century)

Caperuza (Peru). An iron or earthen cylinder, placed over amalgam in distilling, so that the open lower end is in water, into which the condensing mercury drops. (Dwight)

Capes (Scot.). Movable sides and ends put on a hutch, wagon, or car to increase its capacity (Barrowman). *Compare* Bustle, 2.

Cap head (Eng.). A top for an air-box used in shaft sinking. (Bainbridge)

Capillarity. The peculiar action by which the surface of a liquid, where it is in contact with a solid (as in a capillary tube) is elevated or depressed. Capillarity depends on the relative attraction of the molecules of the liquid for each other and for those of the solid. *See also* Surface tension. (Webster)

Capillary. Resembling a hair; fine, minute; having a very small bore. (Webster)

Capillary pyrites. Same as Millerite. (Standard)

Capitacão (Braz.). A poll tax, or a tax fixed according to the number of men employed in mines. (Halse)

Capitan; Capataz (Mex.). A mine captain; *C. de patio*, a surface boss. (Dwight)

Capitana (Peru). A hemispherical stone vessel, 2 feet in diameter, for washing pulp. (Halse)

Caple. (Corn.). A hard rock lining tin lodes (Duryee) *See also* Capel.

Capouazo (Mex.). A blow on the hand of the man holding a drill, due to fault of striker. (Dwight)

Caporal (Sp. Am.). One who supervises laborers; a boss. (Standard)

Capote. 1. (Mex.). The bell-shaped iron cover fitting over the *capellina*, in retorting to confine the heat. (Dwight)
2. (Colom.) A superficial layer of vegetal earth. (Halse)

Capotera (Colom.). A shallow placer. (Halse)

Cappeau furnace. A modification of the Ropp furnace for calcining sulphide ore. (Ingalls, p. 96)

Capped quartz. A variety of quartz containing thin layers of clay.

Capper. In brickmaking, the man who receives the filled molds as they come from a brick-machine; a molder. (Standard)

Cappice (Aust.). A horizontal stick of timber or bar of steel used for supporting a weak roof (Power). A variation of Cap or Cap piece.

Cap piece. Same as Cap, 1. In Arkansas, usually a piece of wood split from a log. (Steel)

Capping. 1. The name given to a method by which the flow of a spouting oil well is stopped or restricted. When a very strong discharge of petroleum is expected, strong valves are attached to the casing, which permit the flow to be controlled, and in order to prevent these valves from being blown away, they are firmly anchored to the ground by means of long, heavy bolts. (Mitzakis)
2. The separation of a block of stone along the plane of the bedding (Bowles)
3. Sometimes used as a synonym for Over-burden. 4. *See* Cap, 1.

Cap pot. In glass making, a crucible having a lid or cap. (Century)

Cap rock. 1. Barren vein matter, or a pinch in a vein, supposed to overlie ore. (Raymond)
2. (Ark.) A hard layer of rock, usually sandstone, a short distance above a coal seam. (Steel)
3. The layer of rock next overlying ore, generally of barren vein material (Webster)

Capsal. A capstan. (Standard)

Cap sill. The upper horizontal beam in the timber framing of a bridge, viaduct, etc. (Century)

Capstan. A vertical axle used for heavy hoisting, and worked by horizontal arms or bars. (C. and M. M. P.)

Capstan bar. One of the levers by which a capstan is worked. (Webster)

Capstone. In masonry, the uppermost or finishing stone of a structure. (Century)

Capsula (Mex.). A blasting cap. (Dwight)

Captain (Corn. and Wales). The official in immediate charge of the work in a mine (Raymond). *See* Mine captain.

Captain dresser (Eng.). A manager of ore-dressing plant. (Bainbridge)

Capulí (Peru). A kind of wood for mine timbering. (Halse)

Car. 1. A vehicle adapted to the rails of a railroad. A vehicle moved on wheels. (Webster)
2. A vehicle used for the conveyance of coal or ore along the gangways or haulage roads of a mine (C. and M. M. P.). Also called Mine car, Tram car, Tub, Wagon, and Mine wagon.

Cara (Sp.). The facet of a crystal. (Dwight)

Caracas (Colom.). Thin, hard layer of gray or reddish clay, between the bed rock and pay gravel. (Halse)

Caracol (Mex.). A curved, spiral, or shell-like structure exhibited by certain silver ores of San Dimas, Durango. (Halse)

Caracolite. A colorless, hydrous, lead-sodium chlorosulphate, perhaps $Pb(OH)Cl.Na_2SO_4$. Occurs as crystalline incrustations. (Dana)

Caracoly. An alloy of gold, silver, and copper used first by the Caribs in making ornaments. (Standard)

Carat. 1. A unit employed in weighing diamonds, and equal to $3\frac{1}{3}$ troy grains (205 mg.). A carat-grain is one-fourth of a carat. The international metric carat (abbr. C. M.) of 200 mg. has (1913) been made the

standard in Great Britain, France, Germany, Holland, and the United States (Webster). 2. A term employed to distinguish the fineness of a gold alloy, and meaning one-twenty-fourth. Fine gold is 24-carat gold. Goldsmiths' standard is 22 carats fine, *i. e.*, contains 22 parts gold, 1 copper, and 1 silver. (Raymond)

Carat-goods. Parcels of diamonds which are of an average weight of about one carat each. (Century)

Carbenes. The components of the bitumen in petroleum, petroleum products, malthas, asphalt cements, and solid native bitumens, which are soluble in carbon disulphide, but insoluble in carbon tetrachloride. *See also* Asphaltene and Petrolene. (Bacon)

Carbide. 1. A binary compound of carbon with some other element (Webster). 2. A commercial term for calcium carbide used in miner's lamps.

Carbide of silicon. An artificial abrasive made by fusing coke, sand, salt and sawdust in electric furnaces. Discovered in an attempt to make artificial diamonds (Pike). *See* Carborundum .

Carbocoal. A pulverulent product obtained by distilling coal at a moderate temperature. It has but little resemblance to coke, but it ignites more readily, supposedly because of the occlusion of an extraordinary amount of oxygen. (Min. and Sci. Press, vol. 117, pp. 471 and 491.)

Carbodynamite. A form of dynamite in which fine charcoal is used as the absorbent. (Webster)

Carbohydrate. Any of a group of compounds, composed of carbon, hydrogen and oxygen and characterized by containing six or a multiple of six carbon atoms combined with hydrogen and oxygen in the proper proportion to form water. (Webster)

Carbolate. A salt of carbolic acid. (Webster)

Carbolic. Of, pertaining to, or derived from carbon and oil; of or pertaining to coal-tar oil. (Standard)

Carbolic acid. A white crystalline deliquescent compound, $C_6H_5.OH$, with a burning taste and odor resembling that of creosote. It is a caustic poison. (Standard)

Carbolite. A by-product in iron smelting, consisting of calcium-aluminum-silicon carbide, and used as a substitute for calcium carbide. (Standard)

Carbón (Mex.). 1. Charcoal. Also called Carbón de leña. 2. *C. de piedra*, mineral coal; *C. craso*, coking coal; *C. de gas*, gas coal; *C. pardo*, lignite or brown coal; *C. seco*, noncoking coal. 3. Graphite. (Halse)

Carbon. An elementary substance occurring native as the diamond and also as graphite or black lead and forming a constituent of coal, petroleum, asphalt, limestone and other carbonates, and all organic compounds. Symbol, C, atomic weight, 12.0. Specific gravity, 1.7 to 3.6. (Webster)

Carbona (Corn.). An irregular deposit or impregnation of tin ore, found in connection with a tin lode. (Raymond)

Carbonaceous. Coaly, containing carbon or coal. Especially shale or rock containing small particles of carbon distributed throughout the whole mass. (Steel)

Carbonado (Braz.). A black or dark-colored diamond, occurring in small irregular rounded nodules. (Halse)

Carbonate. 1. A salt formed by the union of carbonic acid with a base. 2. Any ore containing a large proportion of lead carbonate. *See also* Carbonates, 1.

Carbonated springs. Springs of water, containing carbon dioxide gas. They are very common, especially in volcanic countries; and sometimes contain so much gas, that if a little sugar be thrown into the water it effervesces like soda water. (Comstock)

Carbonated stone. An artificial stone in the manufacture of which steam and carbon dioxide are used to hasten hardening. (Standard)

Carbonate of barium. *See* Witherite.

Carbonate of calcium. *See* Calcium carbonate; *also* Calcite.

Carbonate of strontium. *See* Strontianite.

Carbonates. 1. The common term in the West for ores containing a considerable proportion of carbonate of lead. They are sometimes earthy or ocherous (soft carbonates), sometimes granular and comparatively free from iron (sand carbonates), and sometimes compact (hard carbonates). Often they are rich in silver (Raymond). Salts of H_2CO_3.
2. (Eng.) Black, imperfectly crystallized form of diamond used for rock boring. The diamond is set in

a bit which, as it turns, cuts the rock in an annular form, producing cores (Gresley). *See also* Carbonado.

Carbonato (Sp.). Carbonate; *C. de hierro*, spathic iron. (Halse)

Carbon black. A name for lampblack.

Carbon dioxide. A heavy colorless irrespirable gas, CO_2, which extinguishes a flame. It is formed in mine explosions and mine fires and forms part of the afterdamp.

Carbon disulphide. A clear liquid, CS_2, of very disagreeable odor.

Carboncría (Sp.). 1. A coal yard. 2. A coal shed. 3. A coal mine. *See also* Hullera. (Halse)

Carbonero. 1. (Mex.). A coke or coal wheeler. (Dwight)
2. (Sp.). A coal miner. 3. A coal merchant. 4. A colliery or coal mine. *See also* Hullera. (Halse)

Carbonet. *See* Briquet.

Carbon flame. The characteristic white flame caused by burning carbon. It issues from the converter only when all the silicon has been removed from the molten iron. (Webster)

Carbonic acid gas. *See* Carbon dioxide.

Carbonic oxide gas. *See* Carbon monoxide.

Carboniferous. In the nomenclature of the U. S. Geological Survey, and in general usage as well, the youngest of the systems into which the Paleozoic stratified rocks are divided; also the corresponding period of geologic time. (La Forge)

Carbonite. 1. A native coke, occurring at the Edgehill mines, near Richmond, Va.; it is more compact than artificial coke and some varieties afford bitumen. (Bacon)
2. A permissible explosive.

Carbonization. The process of converting to carbon, by removing other ingredients, a substance containing carbon, as in the charring of wood or the natural formation of anthracite. (Raymond)

Carbonized. Converted into carbon. (Hitchcock)

Carbon monoxide. A colorless, odorless gas, CO. It is the product of incomplete combustion of carbon. It burns with a pale-blue flame forming CO_2. It is very poisonous to animals, since it combines with the haemoglobin of the blood, expelling oxygen (Webster). Also known as White damp.

Carbono (Sp.). The element carbon. (Dwight)

Carbon oil. A trade name for kerosene. (Bacon)

Carbonolite. Wadsworth's name for carbonaceous rocks. (Kemp)

Carbon spar. A name given to several mineral carbonates, as carbonate of magnesium, zinc, etc. (Century)

Carbon spot. A black spot in the body of a diamond. (Webster)

Carbon steel. Steel deriving its qualities from carbon chiefly, without the presence of other alloying elements (Webster). Ordinary steel, as distinguished from chrome steel, manganese steel, etc. (Standard) *See also* Simple steel. *Compare* Alloy steel.

Carbon tube. A cylindrical glass vessel used in the calorimetric determination of carbon in steel (Webster. *See also* Combustion tube.

Carborundum. A crystalline compound, SiC, consisting of silicon and carbon. It is produced in an electric furnace and used as an abrasive (Webster). Silicon carbide.

Carborundum machine. A machine provided with carborundum wheels designed to cut moldings, cornices, balusters, etc., from stone. (Bowles)

Carboy. A large globular glass bottle enclosed in a box or in wickerwork; used mainly for the transportation of corrosive acids and the like. (Standard)

Carbuncle. A gem of a deep-red color, inclining to scarlet, found chiefly in East Indies. When held up to the sun it looses its deep tinge and becomes the color of burning coal. Formerly believed to be capable of shining in darkness. A variety of garnet, though the name includes also the ruby and the spinel. (Century)

Carburet. A combination of carbon with a metal or other substance. A carbide. (Webster)

Carbureted hydrogen. Any of several gaseous compounds of carbon and hydrogen, some of which are the constituents of illuminating gas. (Webster) Light carbureted hydrogen is methane or marsh gas, CH_4. It is the chief constituent of fire damp.

Carburization. The process of imparting carbon, as in making cement steel. (Raymond)

Carburo (Mex.). Carbide. (Dwight)

Cárcamo (Sp.). 1. A drain or conduit for carrying slimes. 2. A drain in a mine. 3. (Mex.) A slime pit. 4. A penstock. (Halse)

Carcão (Port.). A matrix in which gold occurs. (Halse)

Cárcel. 1. (Sp.) The timber frame of a shaft. 2. (Mex.) Hitches or steps for timbers. (Halse)

Card concentrator. A table made of two planes having a flexible joint between them dividing the table into two nearly equal triangles, forming a diagonal line along which concentrates separate from the tailings. (Liddell)

Cardenilla (Mex.). Proustite; ruby silver. (Halse)

Cardenillo (Mex.). Verdigris. (Dwight)

Cardíglio marble (It.). A gray, clouded variety of marble obtained for ornamental purposes from the Island of Corsica. (Page)

Cardinal points. The four principal points of the compass, as North, South, East, and West. (Webster)

Car dumper. A mechanical device for tilting a railroad hopper or gondola car over sidewise and emptying its contents. (Wilcox)

Carena (Sp.). An upright stanchion for supporting machinery. (Min. Jour.)

Carga. 1. (Mex.) A charge, as for a furnace. A mule load, generally of 300 lbs. Avoir., but variable in different places. *C. de arrastre*, a charge for an arrastre; usually about 200 lbs. Avoir. (Dwight)
2. *C. real*, a land tax. 3. (Colom.) Stones, pebbles, and gravel occurring in placers. 4. (Peru) Overburden of a placer mine. (Halse)

Cargada (Colom.). A placer containing many large stones. (Halse)

Cargador (Mex.). One who feeds a furnace; an ore carrier; a porter. (Dwight)

Cargadora (Sp. Am.). 1. The first washing trough (Lucas).
2. A charging vat (Halse). *See also* Tina.

Cargar (Mex.). To charge a furnace (Dwight). To feed a mill.

Cargo (Peru). The first portion of mercury added to an amalgamation charge. (Dwight)

Carguero. 1. (Mex.) A charger for a furnace. (Dwight)
2. (Colom.) Stones, pebbles, etc., taken from placer workings in order to extract the gold. (Halse)

Car haul. An endless chain or cable arranged to haul the cars automatically up a slope, from the top of which the cars may travel by gravity. (Steel)

Carinate fold. In geology, an isoclinal fold (Standard). *See also* Isoclinal.

Carinthian furnace. 1. A small reverberatory furnace with inclined hearth, in which lead ore is treated by roasting and reaction, wood being the usual fuel. (Raymond)
2. A zinc-distillation furnace with small vertical retorts. (Ingalls, p. 393.)

Carinthian process (sometimes spelled Corinthian). A metallurgical method for treating lead ore, the characteristics of which are: The smallness of the charge, the slow roasting, so that for every part of lead sulphide one part of sulphate and at least two of oxide are formed, the low temperature at which all of the operations are carried on, and the aim to extract all the lead in the reverberatory. The hearth is inclined toward the flue and the lead is collected outside of the furnace. (Hofman, p. 88)

Carlsbad twin; Karlsbad. A twin occurring in the monoclinic system with the vertical axis as the twinning axis. (Dana)

Carmeloïte. A name given by A. C. Lawson to a group of eruptive rocks at Carmelo Bay, Calif., which are intermediate between the basalts and andesites. They range in silica from 52 to 60 per cent, have augite and plagioclase for phenocrysts; and a peculiar, orthorhombic, hydrated silicate of iron, lime, magnesia, and soda, which is a secondary mineral after some original, probably olivine. The secondary mineral has been called Iddingsite. (Kemp)

Carmichel-Bradford process. *See* Blast-roasting.

Carmin (Sp. Am.). Ore containing a large amount of oxide or carbonate of iron (Lucas). Colorados; gossan.

Carminite. A carmine to tile-red lead-iron-arsenate, perhaps $Pb_3As_2O_8.10FeAsO_4$. Found in clusters of fine needles; also in spheroidal forms. (Dana)

Carnallite. A massive, granular, greasy, milk-white, soluble, hydrous, magnesium-potassium chloride, $KMgCl_3.6H_2O$, crystalizing in the orthorhombic system. (Dana)

Carne de vaca (Peru). Coarse-grained galena, generally mixed with gray copper-ore. (Dwight)

Carnelian. One of the varieties of chalcedony originally only the red, but now (1890) of any color (Roy. Com.). Also called Cambay stone, from that locality in India.

Carnotite. A canary-yellow mineral, somewhat variable in composition, containing uranium and vanadium, with either or both lime and potash. Is ordinarily a mixture of true carnotite $2UO_3.V_2O_5.K_2O+xH_2O$, and tyuyamunite, $2UO_3.V_2O_5.CaO+xH_2O$. Is radioactive and is used as a source of radium. (U. S Geol. Surv.)

Carnot's cycle. An ideal heat-engine cycle in which the working fluid goes through the four following successive operations. (a) Isothermal expansion to a desired point; (b) adiabatic expansion to a desired point; (c) isothermal compression to such a point that (d) adiabatic compression brings it back to its initial state. (Webster)

Carnot's function. A relation between the amount of heat given off by a source of heat, and the work which can be done by it. (Webster)

Carombé (Braz.). In placer mining, a shallow wooden box for carrying gravel, and also for use in draining levels. (Halse)

Carpet. A bituminous surface of appreciable thickness, generally formed on top of a roadway by the aplication of one or more coats of bituminous material with gravel, sand, or stone chips added (Bacon). Also called Blanket.

Carpintero (Sp.). A carpenter. (Min. Jour.)

Carquaise. An annealing arch for plate glass. (Standard)

Carrack (Eng.). *See* Capel.

Carrana (Peru). Light rawhide shovel for throwing *taquia* into a furnace. (Dwight)

Carranchо (Colom.). 1. Decomposed country rock, generally granite, carrying auriferous pyrite. 2. Soft, shaly or schistose country rock in which the veins are unproductive. (Halse)

Carrara marble. A general name given to all the marbles quarried near Carrara, Italy. The prevailing colors are white to bluish, or white with blue veins; a fine grade of statuary marble is here included. (Merrill)

Carrascal (Mex.). Honey-combed quartz, generally barren. (Dwight)

Carreira (Sp.). A quarry. (Standard)

Carrera (Mex.). A stroke, as of a piston. (Dwight)

Carrero (Mex.). A charge-wheeler; a trammer. (Dwight)

Carreta (Sp.) A wagon, cart, or wheelbarrow. (Halse)

Carretero (Sp.). A trammer. (Lucas)

Carretilla; Carrillo de mano (Sp.). A wheelbarrow. (Min. Jour.)

Carriage (Eng.). *See* Slope cage; *also* Carrigal.

Car rider. A brakeman or laborer employed to ride on car to the dumper, or on cars pushed from cradle, to apply brake and prevent hard bumping (Willcox). A blast furnace term.

Carrier. A catalytic by whose agency a transfer of some element or group is effected from one compound to another. (Webster)

Carrigal (Scot.). A wheeled bogie or platform for the conveyance of coal cars or tubs, in a level position, on a highly-inclined roadway. (Barrowman)

Carrileros (Sp.). Ore carriers. (Min. Jour.)

Carrillo (Sp.). 1. A small cart. 2. *C. de mano*, a wheelbarrow. 3. A pulley block. (Halse)

Carrizo (Mex.). A small hole in rock for a wooden plug. *See also* Chocolón. (Dwight)

Carro (Mex.). A charging buggy; mine car. (Dwight)

Carrot (Eng.). A solid cylindrical specimen or core cut in a borehole. (Gresley)

Carry. 1. (Scot.) The thickness of roof rock taken down in working a seam. 2. The thickness of seam which can be conveniently taken down at one working. (Barrowman)

Carrying gate (Derb.). The main haulage road in a mine. (Hooson)

Carse. A Scottish term applied to the flat lands in valleys. (St. John)

Cart. 1. (Scot.) A measure of 12 cwt. of screened coal (but in practice varying from 12 to 15 cwts.), by which miners were formerly paid. (Barrowman)
2. (Som., S. Wales) A tram with or without wheels for conveying coal underground in thin seams. (Gresley)

Carting (Som.). Hauling coal underground in thin seams. (Gresley)

Cartographic. Pertaining to a map. In geology a cartographic unit is a rock or group of rocks that is shown on a geologic map by a single color or pattern. (Ransome)

Carton. A pasteboard box containing high explosives, blasting-caps, or electric blasting caps, a number of which are packed in a wooden case for shipment. (Du Pont)

Cartridge 1. A cylindrical, waterproof, paper shell, filled with high explosive and closed at both ends (Du Pont). Used in blasting.
2. Short cylinders (about 4 inches long and 2½ inches in diameter) of highly compressed caustic lime made with a groove along the side, used in breaking down coal. *See also* Lime cartridge. (Gresley)

Cartridge pin. A round stick of wood on which the paper tube for the blasting cartridge is formed. (Greene)

Car trimmer. A person who adjusts the load in a railroad or mine car. (Steel)

Cart trade (Som.). *See* Land sale.

Cartucho (Mex.). Explosive cartridge. (Dwight)

Carving (Leic.). 1. A wedge-shaped vertical cut or cutting at the side of a stall. 2. An airway between the solid and a pack wall. (Gresley)

Casa (Sp.). House; *C. de fundición*, a smeltery; *C. de moneda*, a mint. (Halse)

Casar metales (Peru). To mix ores for amalgamation or smelting. (Dwight)

Cascajal (Sp.). A gravel pit. (Crofutt)

Cascajero (Colom.). An alluvial mine already worked but which still contains gold. (Halse)

Cascajo. 1. (Mex.) Gravel; waste rock; oxidized free-milling ore. (Dwight)
2. (Peru) A large pocket of ore containing native silver in quartz mixed with yellow ocherous clay. (Halse)

Cascalho (Braz.). 1. Coarse, gold-bearing gravel and sand and subangular rocks embedded in a ferruginous clay. 2. A mixture of clay and quartzose gravel found in river beds, and containing diamonds. (Halse)

Cáscara (Spain). Copper precipitate obtained from mine water; cement copper. (Lucas)

Case. 1. A small fissure, admitting water into the mine workings. (Raymond)
2. One of the frames, of four pieces of plank each, placed side by side to form a continuous lining in galleries run on loose earth. (Webster)
3. A wooden box in which dynamite, cartons of electric blasting caps, boxes of blasting caps or coils of fuse are shipped. (Du Pont)

Case book (No. of Eng.). A book kept at a colliery in which the name and description of every horse or pony which is off work for 24 hours, or longer, and the driver's name, is entered. (Gresley)

Cased tin (Eng.). Fine tin ore that is retreated by a gentle current of water flowing over the frame or table. (Hunt)

Case harden. To convert iron superficially into steel by partial cementation; as case-hardened steel. (Raymond)

Case hardening. A process of hardening (iron or steel) by carbonizing the surface, thus converting soft iron into steel or mild steel into hard steel to a depth depending on the length of treatment. This is commonly effected by cementation with charcoal or other carbonaceous material, but for a mere skin of steel a short treatment with fused potassium cyanide suffices. (Webster)

Case markings. The letters or figures stenciled or printed on the front of a case containing explosives indicating the size, weight, kind, strength, date, and place of manufacture (Du Pont)

Cases of spar (Eng.). Intersecting veins of quartz. (Bainbridge)

Cash (Som.). Soft shale or bind in coal mines. (Gresley)

Cashy blaes (Scot.). Soft coaly blaes with little coherence. (Barrowman)

Casing. 1. (Corn.) A partition or brattice, made of casing plank, in a shaft. 2. (Pac.) Zones of material altered by vein action, and lying between the unaltered country rock and the vein (Raymond). *See also* Capel, Gouge, and Selvage.
3. Steel or iron tubing used to case an oil or gas well. (Nat. Tube Co.)
4. (Ohio) A local term applied to thin slabs of sandstone that split out between closely spaced joints. (Bowles)

Casing clamps. Instruments generally manufactured from wrought iron, and used for raising or lowering casing. They are made in two pieces held by heavy bolts, which fit into corresponding holes, on the sides of the clamps. In Canada, heavy wooden clamps are used instead of iron ones. (Mitzakis)

Casing cutters. Instruments used in oil fields for cutting casing prior to raising it to the surface, after the completion of a well. (Mitzakis)

Casing dog. In well boring, a fishing instrument provided with serrated pieces or dogs sliding on a wedge, to grip severed casing; also called Bull dog; Casing spear. (Nat. Tube Co.)

Casing elevators. In well-boring, a device consisting of two semi-circular clamps, with a chain link on either, that are hinged together at one end and secured by a latch at the other. Used for raising and lowering casing. *See also* Casing dog. (Nat. Tube Co.)

Casing fitting. A fitting threaded with a casing thread. (Nat. Tube Co.)

Casing head. 1. A fitting attached to the top of the casing of a well to separate oil and gas, to allow pumping, and cleaning out well, etc. It may have several lateral outlets, through which the flow of the oil can be controlled and led away to reservoirs by mean of pipes 2. In well boring, a heavy mass of iron screwed into the top of a string of casing to take the blows produced when driving the pipe. Also called Drive head. (Nat. Tube Co.)

Casing-head gas. Natural gas rich in oil vapors. So named as it is usually collected, or separated from the oil, at the casing head. Frequently called Combination gas or Wet gas.

Casing of a reef (Aust.). The abnormal vein stuff abutting on the solid reef (Duryee). *See also* Casing, 2.

Casing shoe. A circular steel instrument having a cutting edge, fixed to the bottom of each column of casing, to strengthen the casing, when driven into the ground. (Mitzakis)

Casing spear. An instrument used for recovering casing which has accidently fallen into the well. The "bull dog," which is the most simple form of casing spear, consists of a steel body tapered at the top, on which slide two steel segments with serrated edges. When lowered inside the casing to be recovered the steel segments are pushed upward, along the narrow part of the body, but when raised, the segments remain stationary, and the weight of the casing forces the thicker part to exercise a pressure on the segments forcing them outward. The greater the pull, the greater is the corresponding lateral pressure (Mitzakis). Also called Casing dog.

Casiterita (Mex.). The tin oxide, cassiterite. (Dwight)

Casquillo (Mex.). A blasting cap. (Dwight)

Cassel brown; Cassel earth. A brown pigment of varying permanence, consisting of impure lignite. (Webster)

Casserole. A small round dish with a handle; usually of porcelain. Used in chemical laboratories. (Webster)

Cassinite. A feldspar from Delaware county, Penn., containing several per cent of baryta. (Century)

Cassiterite. Tin oxide, SnO_2. Contains 79 per cent tin. The mineral from which practically all tin is obtained. (U. S. Geol. Surv.)

Cast. 1. The form of a fossil preserved in some substance which has filled the space left by the fossil. (Lowe)
2. To form in a particular shape by pouring molten metal into a mold and letting it harden. 3. To form by throwing up earth; to emit or give out. (Webster)

Cast-after-cast (Corn.). The throwing up of ore from one platform to another successively. *See also* Shambles. (Raymond)

Castanite. A chestnut-brown hydrous ferric sulphate, $Fe_2O_3 2SO_3 . 10H_2O$. (Dana)

Castaways. Sterile veinstone. (Power)

Castellano (Mex.). 1. A small furnace about 48 inches high, 10 inches square, used for lead smelting. Probably introduced by the Spaniards. (Dwight)
2. An ancient Spanish coin. (Halse)

Castellanos powder. A kind of blasting powder containing nitroglycerin and either nitrobenzene or a picrate, mixed with other materials. (Webster)

Casteth (Derb.). Said of a shaft when air issuing from it on a cool or frosty morning contains visible vapor. (Hooson)

Cast gate. In founding, the channel through which the metal is poured into a mold. (Century)

Casthole (Derb.). A prospect hole not exceeding about nine feet deep, the depth from which waste material may be thrown by hand. (Hooson)

Cast house. The building in which pigs or ingots are cast. (Raymond)

Castigar (Mex.). To smooth or plane surfaces of rocks or boards. (Dwight)

Castillite. An impure variety of bornite, containing zinc, lead, and silver sulphides. (Dana)

Castillo (Mex.). 1. The frame of a stamp mill. 2. A hoist; a pulley frame. (Halse)

Casting. Pouring or drawing fused metal from a blast furnace, cupola, crucible, converter, or ladle into molds. (Raymond)

Casting copper. Impure copper better suited for casting into various forms than for drawing into wires or rolling into sheets. (Weed)

Casting ladle. An iron ladle with handles, used to pour molten metal into a mold. (Century)

Casting over. A quarryman's term for an operation consisting of making a cut with a steam shovel, which, instead of loading the material on cars, moves it to one side, forming a long ridge. (Bowles)

Casting pit. The space in a foundry in which the molds are placed and the castings made. In the Bessemer and open-hearth steel works it is the space utilized for casting the molten steel into the cast-iron ingot-molds. (Century)

Casting plate. A casting table used in glass making. (Webster)

Cast-iron. Iron which has been cast, that is melted and run into a mold in which it assumes the desired form. Most cast-iron is pig iron which has been remelted in a cupola furnace. Iron made from ore by smelting in the blast furnace is, in fact, cast-iron and its properties are not altered by remelting, but it is commonly known as pig iron, or pig. (Century)

Castor. Same as Castorite.

Cast, or fusible porcelain. Same as Cryolite glass. Called also Hot-cast porcelain. (Standard)

Castorite. A transparent variety of pelalite that crystallizes in the monoclinic system. (Dana)

Cast scrap. Cast-iron scrap.

Cast steel. 1. Steel which has been rendered homogeneous by remelting in crucibles or pots. (Century)
2. Any malleable compound of iron produced by fusion, including both Bessemer and open-hearth steel, as well as crucible steel. (Standard)

Cast-weld. To weld by heating as if for casting, as to cast-weld rails. (Webster)

Caswellite. A bronze, copper-red, altered mica that is closely related to phlogopite. (Standard)

Cat; Catch earth (So. Staff.). A hard fire clay. (Gresley)

Cata. 1. (Sp.) A mine denounced, but unworked. (Raymond)
2. (Mex.) A prospect-hole, or pit. (Dwight)
3. (Braz.) A placer. (Halse)

Cataclasm. A breaking or rending asunder; a violent disruption. (Standard)

Cataclastic. Having a fragmental texture due to crushing during dynamic metamorphism: said of certain metamorphic rocks (La Forge). *Compare* Autoclastic.

Cataclinal. Extending in the direction of the dip: said of a valley. (Standard)

Cataclysm. 1. Any overwhelming flood of water; especially, the Noachian deluge. 2. Any violent and extensive subversion of the ordinary phenomena of nature; an extensive stratigraphic catastrophe. (Standard)

Cataclysmal. *See* Cataclysmic.

Cataclysmic. 1. Accompanied with violet disruption. (Lowe)
2. Pertaining to or of the nature of a cataclysm; characterized by a cataclysm or cataclysms. (Standard)

Catacorte (Colom.). A prospecting trench; a ditch. (Halse)

Catalan forge. A forge, with a tuyère, for reducing iron ore, with charcoal, to a loup of wrought iron; a bloomery. *See also* Champlain forge. (Raymond)

Catalysis. Berzelius describes it as a decomposition and new combination produced among the proximate and elementary principles of one or more compounds by virtue of the mere presence of a substance or substances which do not of themselves enter into the reaction. (Ingalls, p. 194)

Catalytic. An agent employed in catalysis, as platinum black, aluminum chloride, etc. (Webster)

Cat and clay (Eng.). Straw and clay worked together, laid between laths in building mud walls. (Webster)

Catapleite. A light-yellow to yellowish-brown, hydrous silicate, $H_4(Na_2Ca)ZrSi_3O_{11}$, crystallizing in thin tabular hexagonal prisms. (Dana)

Catar; Catear. 1. (Sp.). To search for minerals. 2. (Colom.). To pan; to dolly. (Halse)

Catarinite. A native alloy of iron and nickel, Fe_2Ni. (Standard)

Catastrophe. 1. In geology, a sudden, violent change in the physical conditions of the earth's surface; a cataclysm. (Standard)
2. In mining, a disaster in which many lives are lost or much property damaged, as by a mine fire, explosion, inrush of water, etc.

Catawbrite. A name given by O. Lieber to a rock in South Carolina that is an intimate mixture of talc and magnetite. (Kemp)

Cat bank (Eng.). An iron loop placed on the underside of the center of a flat corf bow (bucket handle), in which to insert the hook. (G. C. Greenwell)

Cat block. A pulley block.

Catchall. A tool for extracting broken implements from drilled wells. (Webster)

Catch basin. A reservoir to catch and retain surface drainage. (Webster)

Catch earth. *See* Cat.

Catcher. 1. (Eng.). A safety or disengaging hook for prevention of overwinding. 2. (Leic.). *See* Cage shut. 3. Strong beams in mine shafts to catch the rods of pumps in case of a breakdown. (Gresley)

Catches. 1. Catches or rests placed on shaft timbers, to hold the cage when it is brought to rest at the top, bottom, or any intermediate landing. Also called Latches, Chairs, Keeps or Dogs. 2. Stops fitted on a cage to prevent cars from running off. (Woodson)
3. (Mid.) Projecting blocks of wood attached to pump spears to prevent damage in case of a breakdown. (Gresley)

Catchment area. An intake area and all parts of the drainage basin which drain into it. (Meinzer)

Catchment basin. The entire area from which drainage is received by a reservoir, river, or the like. (Webster)

Catch pin (Eng.). A strong oak or iron pin fixed over and to the ends of the beam of a pumping engine, which, in the event of a broken spear, prevents damage to the top or bottom of the cylinder. *See also* Spring beams. (G. C. Greenwell)

Catch pit. A reservoir for saving tailings from reduction works (C. and M. M. P.). A catch basin.

Catch scaffold (Eng.). A platform in a shaft a few feet beneath a working scaffold to be used in case of accident. (Gresley)

Cat dirt (Derb.). 1. A hard fire clay. 2. Coal mixed with pyrite. 3. A kind of earthy scoria not unlike lava. (Min. Jour.)

Cateador (Mex.). Prospector (Dwight)

Catear (Sp.). To search for new mines. (Min. Jour.)

Cateo (Sp. Am.). Prospecting. (Halse)

Catero (Sp.). A prospector (Halse)

Cat face. A miner's term for glistening balls or nodules of pyrite in the face of coal.

Cat-faced block (N. Y. and Penn.). A bluestone quarryman's term for a mass of waste situated between two closely spaced open joints. (Bowles)

Cat gold. An early name for gold-colored mica. (Chester)

Cathead. 1. A small capstan. 2. A broad-bully hammer. *See also* Bully. (Raymond)
3. (Prov. Eng.) A nodule of iron-stone containing fossils. (Standard)

Cathode. The negative terminal of an electric source, or more strictly, the electrode by which the current leaves the electrolyte on its way back to the source. (Webster)

Cat hole. A small hole dug in rock for the point of a tripod leg of a machine drill. (Gillette, p. 99)

Catlinite; Indian pipestone. A red clay found in southwestern Minnesota and formerly used by the Indians for making pipes. (U. S. Geol. Surv.)

Catoctin. A monadnock or residual mountain or ridge which preserves on its summit a remnant of an old peneplain. (La Forge)

Catogene. A general term for sedimentary rocks, since they were formed by deposition from above, as of suspended material. *Compare* Anogene; Hypogene.

Catrake. An hydraulic brake or controller of a Cornish pumping engine, first introduced by Boulton and Watt. (Gresley)

Catrines (Mex.). A general name given by Indians to foreigners, and includes Spaniards (*gachupines*), French (*gavachos*) and Germans, English, and North Americans (*gringos*). (Halse)

Cats (Scot.). Burnt clay used for tamping in wet strata. (Barrowman)

Cat salt. A granulated salt formed from the bittern or leach brine used for making hard soap. (Century)

Cat's brain. Sandstones traversed in every direction by little branching veins of calcite. (Power)

Cat's-eye. A greenish, chatoyant, variety of chrysoberyl. (Dana)

Cat's-head (Ireland). A nodule of hard gritstone in shale (Century). *Compare* Cathead, 3.

Cat silver. A name sometimes given to a variety of silvery mica. (Century)

Cat's quartz. 1. Same as Cat's-eye. 2. A variety of quartz containing fibers of asbestos. (Standard)

Cat-stane. 1. (Scot.). A conical cairn or monolith supposed to mark the locality of a battle. 2. One of the upright stones which supports the grate in a fireplace. (Century)

Cattermole process. A flotation process in which a quantity of oil, varying from 4 to 6 per cent and 2 per cent soap was added to a flowing pulp, to oil the sulphides and make them stick together, forming large and heavy granules. These granules are heavy enough to fall to the bottom and remain in a pulp current while the gangue is washed away. (Megraw, p. 15; T. J. Hoover, p. 10)

Catty. 1. An East Indian and Chinese weight of about 1⅓ pounds Avoir., or 604.8 grams. (Webster)
2. (Straits Set.). A gold weight which equals 2.9818 lbs. troy. (Lock)

Cauce (Mex.). A river channel; bed of a stream or river. (Dwight)

Cauf (No. of Eng). A coal bucket or basket. (C. and M. M. P.). *See also* Corf.

Cauk. 1. (Eng. Scot.). Chalk; lime stone. 2. An English miner's term for barite, or heavy spar (Century). *See* Cawk, 1 and 2.

Cauld (Scot.). A dam in a river; a weir. (Century)

Cauldron; Cauldron bottoms (So. Wales). The fossil remains of the "casts" of the trunks of sigillaria that have remained vertical above or below the coal seam (C. and M. M. P.). *See* Bell-mold.

Caulk. A variation of Calk.

Caunch. *See* Canch.

Caunter-lode (Corn.). A vein coursing at a considerable angle to neighboring veins. (Raymond)

Caustic. Capable of destroying the texture of anything or eating away its substance by chemical action; burning; corrosive. (Webster)

Caustic ammonia. Ammonia as a gas or in solution.

Caustic lime. Calcium hydroxide, $Ca(OH)_2$, or slaked lime.

Caustic potash. Potassium hydroxide, KOH.

Caustic silver. Silver nitrate, $AgNO_3$.

Caustic soda. Sodium hyroxide, NaOH.

Cave. 1. A natural cavity, recess, chamber, or series of chambers and galleries beneath the surface of the earth, within a mountain, a ledge of rocks, etc.; sometimes a similar cavity artificially excavated. 2. Any hollow cavity. 3. A cellar or underground room. 4. The ash pit in a glass furnace. (Standard) 5. The partial or complete falling in of a mine. Called also Cave-in. (Weed)

Cave deposits. Irregular deposits of material in the caves generally found in limestone. (Duryee)

Cave earth. A deposit of sand, soil, etc., washed into caves. (Webster)

Cave hole. A depression at the surface, caused by a fall of roof in the mine. (Greene)

Cave-in. *See* Cave, 5.

Cavel. A stone mason's ax.

Cave man. One of a race of men of the early Stone Age, who dwelt largely in caves. (La Forge)

Cave pearl. A pearly concretion, in composition like true pearl, formed in limestone caves by the agency of water. (Webster)

Caver. (Derb.). 1. One who steals ore or coal at a mine. 2. An officer who guards a mine. (Standard)

Cavern. A large natural underground cavity or cave; a den; any cavity. (Standard)

Cavern limestone. Any limestone abounding in caverns, especially the Carboniferous limestone of Kentucky. (Webster)

Cavernous. Containing cavities or caverns, sometimes quite large. Most frequent in limestones and dolomites. (Roy. Com.)

Cavil. 1. (No. of Eng.). A lot, drawn quarterly by a miner for his working place in the mine. (Gresley) 2. To draw lots at stated periods, by miners to determine the places in which they will work for the following period. (Power)

Cavilling rules (No. of Eng.). Rules or by-laws in reference to cavils and wages. (Gresley)

Caving. 1. The falling in of the sides or top excavations. (Raymond) 2. A system of mining developed in the Lake Superior district. *See* Caving system.

Caving by raising. *See* Chute caving.

Caving system. A method of mining in which the ore, the support of a great block being removed, is allowed to cave or fall, and in falling is broken sufficiently to be handled; the overlying strata subsides as the ore is withdrawn. There are several varieties of the system. *See* Block caving; Top slicing and cover caving; Top slicing combined with ore caving.

Cawk. 1. (Eng.) Sulphate of barium heavy spar. (Raymond) 2. (Scot.). Chalk; limestone (Standard). Also spelled Cauk.

Cayuse. An Indian pony. A common term in Western United States. (Webster)

Cazar (Mex.). To ram with a piece of timber. (Dwight)

Cazeador (Sp.). Amalgamator. (Dwight)

Cazo (Sp.). A caldron in which amalgamation is effected by heating; used in Mexico and South America (Raymond). Any large copper or iron vessel. (Dwight)

Cebar. 1. (Sp.). To melt rich ores, or lead bullion, etc., in the smelting furnace. To add small quantities of material, from time to time, to the bath in a furnace. Generally, to feed any kind of metallurgical machinery or process. (Dwight) 2. *C. el barreno*, to prime a drill hole. 3. *C. la bomba*, to prime a pump. (Halse)

Cebo (Sp.). 1. The second addition of mercury, to the *torta* in the *patio* process. 2. A charge for a smelting furnace. 3. Priming, as of gunpowder. 4. (Colom.) Calcium Carbonate deposited in veins. 5. (Mex.) *Metal de cebo*, very rich silver ore smelted in a refining furnace. (Halse)

Cedarite. A fossil resin resembling amber, somewhat widely distributed in the alluvium of the Saskatchewan River in Canada. *See also* Succinite. (Bacon)

Cedazo (Mex.). Screen or sieve. *See also* Criba. (Dwight)

Ceja (Mex.). In vanning with horn spoon or miner's pan, the heaviest streak or concentrate that appears at the edge. (Dwight)

Celasa (Mex.). A cage. (Dwight)

Celestite. Strontium sulphate, $SrSO_4$. (Dana)

Cell. A single jar or element of a voltaic battery. There are many types and varieties.

Cellar stone. Small, irregular, rock fragments. (Bowles)

Cellular pyrite. Marcasite. (Power)

Cement. 1. The material that binds together the particles of a fragmental rock. It is usually calcareous, siliceous, or ferruginous. 2. The word is also used in gold-mining regions to describe various consolidated, fragmental aggregates, such as breccia, conglomerate, and the like, that are auriferous. (Kemp)
3. A substance used in a soft pasty state to join stones or brick in a building, to cover floors, etc., which afterwards becomes hard like stone; especially a strong mortar made with lime or a calcined mixture of clay and limestone. *See also* Portland cement. (Webster)
4. A finely divided metal obtained by precipitation. 5. The substance in which iron is packed in the process of cementation. (Standard)

Cementation. 1. A process of causing a chemical change in a substance by heating it while embedded in a powdered mass of another substance, as in making steel by heating wrought iron in charcoal until it is carburized, or in making so-called malleable iron by heating cast iron in a bed of red hematite until it is partly decarburized. (Standard)
2. The process of obtaining a metal by precipitation from a solution, as copper from a solution of blue vitriol by means of metallic iron. (Webster)
3. The process by which sediments, or sands, are consolidated into hard rock. Used in oil-well practice.

Cementation-box. The box of wrought iron in which case hardening is effected. (Century)

Cement copper. Copper precipitated from solution. (Raymond)

Cement deposits. The Cambrian conglomerates occupying supposed old beaches or channels. Gold bearing in the Black Hills. (Ore Dep., p. 309)

Cement gold. Gold precipitated in fine particles from solution. (Raymond)

Cement gun. A mechanical apparatus for the application of cement to the walls or roof of a mine, or for the application of stucco to the walls of buildings.

Cementing furnace. A furnace used in the process of cementation. (Century)

Cementing material. *See* Cement, 1, 3 and 5.

Cementing oven. An oven used for the same purpose as a cementing furnace. (Century)

Cementite. Iron combined with carbon as it exists in steel before hardening. (Standard)

Cement mill. A mill for crushing and grinding cement stone; also a mill for grinding the cinder after it comes from the kiln.

Cemento (Sp.). 1. Hydraulic lime or cement. 2. In geology, the cementing material of a conglomerate or breccia. 3. A brown deposit obtained in the precipitation tank by the addition of iron sulphate in the chlorination process. (Halse)

Cement rock. An argillaceous limestone used in the manufacture of natural hydraulic cement. Contains lime, silica, and alumina in varying proportions, and usually more or less magnesia. (U. S. Geol. Surv.)

Cement silver. Silver precipitated from solution, usually by copper. (Raymond)

Cement steel. Steel made by cementation; blister steel. (Standard)

Cement stone; Cement rock. Any rock which is capable of furnishing cement when properly treated. (Century)

Cendrada. 1. (Mex.) The cupel-hearth of a furnace in which silver is refined or rich lead cupelled. Made of finely-pulverized clay or other absorbent earth, mixed with ashes of bone or wood. (Dwight)
2. (Sp.) Ashes or cinders at the bottom of a furnace, and valuable for use in other smelting operations. (Raymond)
3. (Chile) The crucible of a copper smelting furnace. (Halse)

Cendradilla (Mex.). A small reverbatory furnace for smelting rich silver ores in a rough way. Also called *Galeme.* (C. and M. M. P.)

Cenicero (Sp.). Ashpit; ash hole. (Halse)

Ceñido (Mex.). Narrowed. (Dwight)

Cenizas (Sp.). Ash; cinder; *C. de hueso,* bone ash. (Halse)

Cenozoic. The latest of the five eras into which geologic time, as recorded by the stratified rocks of the earth's crust, is divided; it extends from the close of the Mesozoic era to and including the present. Also the whole group of stratified rocks deposited during the Cenozoic era. The Cenozoic era includes the periods called Tertiary and Quaternary in the nomenclature of the U. S. Geological Survey; some European authorities divide it, on a different basis, into the Paleogene and Neogene periods, and still others extend the Tertiary period to include the whole. (La Forge)

Center country (Aust.). The rock between the limbs of a saddle reef. (Power)

Center cut. The bore holes, drilled to include a wedge-shaped piece of rock, and which are fired first in a heading, tunnel, drift, or other working place. (Du Pont). *See also* Center shot.

Centering; Centreing. A substructure, usually of timber or planks, on which a masonry arch or vault is built, and on which it rests until complete and therefore self supporting. (Webster)

Center of gravity. That point in a body or system of bodies through which the resultant attraction of gravity acts when the body or system of bodies is in any position; that point from which the body can be suspended or poised in equilibrium in any position. (Webster)

Center of mass. A point in a body, or system of bodies, such that the sum of the moments of the component particles about any plane through the point equals zero. (Webster)

Center of symmetry. In crystallography, in general, the point in which the axes or planes of symmetry intersect; in the normal group of the triclinic system, which has neither planes nor axes of symmetry, the point with respect to which equivalent opposite faces are symmentrical. (La Forge)

Center shot. A shot in the center of of the face of a room or entry (Steel). Also called Center cut.

Centigrade. Consisting of a hundred divisions. The centigrade thermometer has zero, 0°, as the freezing point of water and 100° as the boiling point. To convert centigrade thermometer readings to Fahrenheit readings multiply the former by 1.8 and add 32°. (Goesel)

Centigram. A weight equal to one hundredth part of a gram, or 0.15432 of a grain. *See also* Gram. (Webster)

Centner (Ger.). A commercial hundred weight in several continental countries, now generally fixed at 50 kg. or 110.23 lbs. (Webster)

Centric. In geology, having the material more or less arranged either radially or concentrically around centers, a crystal often forming the center: said of rock texture. (Standard)

Centrifugal force. A force directed outward when any body is constrained to move in a curved path; flying away from the center. (Webster)

Centrifugal pump. A form of pump which displaces fluid by whirling it around and outwardly by vanes rotating rapidly in a closed case. (Webster)

Centripetal pump. A pump with a rotating mechanism that gathers a fluid at or near the circumference of radial tubes and discharges it at the axis. (Standard)

Centro (Mex.). Center. (Dwight)

Centroclinal. In geology, an uplift of strata which gives them a partial quaquaversal dip. (Standard)

Centrosphere. In geology, the central portion of the terrestrial globe. (Standard)

Centrosymmetrical. In mineralogy, having symmetry around a center, but without plane or axis of symmetry. (Standard)

Cepillo (Mex.). A brush; *C. chico*, a shaper; *C. grande*, a planer. (Dwight)

Cepo (Mex.). 1. A notch in which timber is fixed. (Dwight)
2. The cylindrical post in the bottom of an arrastre upon which the vertical post revolves. (Halse)

Ceramic. Of or pertaining to pottery (including porcelain and terra-cotta) or its manufacture, fictile art, or ceramics in general. (Standard)

Ceramics. 1. That department of plastic art which includes the production of all objects formed by molding, modeling, and baking clay, such as terra-cotta, and pottery in general; fictile art. 2. The objects so made. (Standard)

Ceramist. A person devoted to the ceramic art, whether as a manufacturer, a designer and decorator, or as a student or connoisseur. (Century)

Ceramites. A term used by M. E. Wadsworth to include all fictile ceramic minerals. (Power)

Cerargyrite; Horn silver. Silver chloride, AgCl. Contains 75 per cent silver. (U. S. Geol. Surv.)

Ceratophyre. *See* Keratophyre.

Cerca (Chile). Bed rock. Sometimes spelled *Circa*. (Halse)

Ceresine. A trade name for refined ozocerite. (Mitzakis)

Cerite. A hydrous silicate of cerium and allied metals occurring generally in brown masses. Hardness, 5.5; specific gravity, 4.86. *See also* Allanite. (Dana)

Cerium. A rare metallic element resembling iron in color and luster, but is soft, malleable and ductile. Symbol, Ce; atomic weight, 140.25. Specific gravity, 6.7. (Webster)

Cerium metals. A group of related rare earth metals including cerium, lanthanum, praseodymium, and neodymium. (Webster)

Cermak-Spirek furnace. An automatic reverberatory furnace of rectangular form divided into two sections by a longitudinal wall. Used for roasting zinc and quicksilver ores. (Ingalls, p. 125)

Cernidero (Colom.) The place where the screening and washing operation takes place in placer mines. (Halse)

Cernidor. 1. (Mex.). Moving screen; trommel. (Dwight)
2. (Colom.). A buddler. (Halse)

Cernidos (Peru). Small ore remaining on a ½ to ¾ in. screen. (Pfordte)

Cernir (Sp.) To screen or separate. (Lucas)

Ceroid. Waxlike. (Hitchcock)

Cerracho (Peru). Mercury that collects on the top of the furnace charge. (Halse)

Cerrazón (Colom.). A portion of a placer deposit abounding in large stones. (Halse)

Cerro. 1. (Sp.). A hill or mountain. (Raymond)
2. (Colom.). *Mina de cerro*, a placer mine near mountain tops or on high table-lands where water is scarce. (Halse)

Certain rent. Same as Dead rent.

Ceruleum. A blue pigment, consisting of protoxide of cobalt, mixed with stannic acid and sulphate of calcium.

Ceruse. A name sometimes applied to white lead. (Ure)

Cerusita (Mex.). Cerussite (Dwight)

Cerussite. Lead carbonate, $PbCO_3$. Contains 77.5 per cent lead. (Dana)

Cervantite. An orthorhombic antimony oxide, Sb_2O_4. Infusible before the blowpipe. (U. S. Geol. Surv.)

Cesio (Mex.). Cæsium. (Dwight)

Cesta. (Sp.). A basket; *C. de minero* a miner's basket. (Halse)

Ceylonite; Ceylanite. A dark variety of spinel in which iron is present. From Ceylon. (Dana)

Chabazite. A hydrous silicate, essentially of calcium and aluminum. (Dana)

Chacra. 1. (Bol.). An inheritance of gold (Lock)
2. (Peru). A small tract of land owned by an Indian miner. 3. An Indian village. (Halse)

Chacuaco (Mex.) A cupel furnace with absorbent hearth. (Dwight)

Chacurruscar (Peru). To mix several kinds of ore. (Dwight)

Chad (Eng.). Gravel; small stones which form the bed of a river. (Century)

Chadacryst. An inclosed crystal; the smaller crystal of a poikilitic fabric. *See also* Oikocryst. (Iddings, p. 202)

Chadger (Derb.). Anything made fast to a hoisting rope by a noose, as a large rock or piece of ore that cannot be placed in a bucket. (Hooson)

Chafery. A forge fire for reheating. (From the Fr. *Chaufferie.*) (Raymond)

Chaffee work. A local term used in Colorado for annual labor on a mining claim. (Duryee)

Chaflán (Mex.). An inclined winze; bevel. (Dwight)

Chain. 1. A unit of measurement used in surveying principally and equal to 66 feet. Called Gunter's chain. Usually divided into 100 links, each link being 7.92 in. long. 2. A series of links or rings, usually of metal, connected or fitted into one another. 3. A mechanical combination con-

sisting of two or more links. 4. A circuit as of a galvanic battery. 5. In chemistry, a number of atoms united serially. (Webster)
6. (or saw) The portion of the machine that does the cutting in the work of undercutting coal at the face of an entry. (Morris v. O'Gara Coal Co., 181 Illinois App., p. 312)

Chain-breast machine. A coal-cutting machine, so constructed that a series of cutting points attached to a circulating chain work their way for a certain distance under a seam; when the limit is reached, the machine is withdrawn and shifted to one side, where another cut is put in. (Power)

Chain-brow way. An underground inclined plane worked by an endless chain. (Gresley)

Chain grate. A feeding device for furnaces.

Chainman. 1. Either of the two men necessary to use a chain or tape in surveying. (Webster)
2. *See* Chain runner.

Chain pillar. A pillar left to protect the gangway and airway, and extending parallel to these passages. (Chance)

Chain road. An underground haulage way operated by an endless chain system. (Gresley)

Chain runner; Chain boy; Chain man (Scot.). A person in charge of, and who accompanies, cars, trips, or trains in mechanical haulage. (Barrowman)

Chain tongs. A pipe-fitter's tool; a lever with a serrated end provided with a chain to embrace the pipe. (Nat. Tube Co.)

Chainwall (Scott.). 1. A system of working by means of wide rooms and long narrow pillars, sometimes called Room and rance. 2. A long narrow strip of mineral left unworked, *e. g.*, along the low side of a level. (Barrowman)

Chairs. Movable supports for the cage arranged to hold it at the landing when desired. Also called Catches, Dogs, Keeps. (Steel)

Chalcanthite. A hydrous copper sulphate, $CuSO_4+5H_2O$. Blue vitriol. (U. S. Geol. Surv.)

Chalcedony. A transparent or more generally translucent cryptocrystalline quartz. It often lines or fills cavities in rocks. (U. S. Geol. Surv.)

Chalchihuitl (Mex.). Any green precious stone (Dwight). According to G. F. Kunz, the precious chalchihuitl is jadeite. Also spelled *chalchigüite* and *chalchuhuites*.

Chalchuite. A bluish-green turquoise found in New Mexico, and, according to W. P. Blake, the same as Chalchihuitl. (Dana)

Chalcites. 1. A term used by M. E. Wadsworth to include lime, mortar, cement, etc., used as building materials. (Powe.)
2. A decomposition product of either iron or copper pyrites, hence described as iron sulphate (green vitriol), copper sulphate (blue vitriol), or iron oxide (colcother). (Standard)

Chalcocite. A copper sulphide, Cu_2S. Contains 79.8 per cent copper. Copper glance. (U. S. Geol. Surv.) The mineral is the characteristic and most important product of the downward enrichment of copper ores and the chief source of copper in the Ray and Miami (Ariz.) districts. (Ransome)

Chalcodite. A scaly mica-like bronze colored variety of stilpnomelane. (Dana)

Chalcomenite. A hydrous cupric selenite, $CuSeO_3+2H_2O$. Occurs in small blue monoclinic crystals. (Dana)

Chalcomorphite. A vitreous hydrous calcium-aluminum silicate. (Standard)

Chalcophanite; Hydrofranklinite. A hydrous manganese-zinc oxide $(Mn,Zn)O.2MnO_2.2H_2O$. (U. S. Geol. Surv.)

Chalcophyllite. A highly basic arsenate of copper, $7CuO.As_2O_5.14H_2O$, of various shades of green, occurring in tabular crystals or foliated masses. (Dana)

Chalcopirita (Mex.). Chalcopyrite. (Dwight)

Chalcopyrite. A sulphide of copper and iron, $CuFeS_2$. Contains 34.5 per cent copper. Copper pyrites, yellow copper ore. (U. S. Geol. Surv.)

Chalcopyrrhotite. A brownish, brass-yellow iron-copper sulphide, Fe_4CuS_6. (Standard)

Chalcosiderite. A light siskin-green hydrous copper-iron, phosphate, $CuO.3Fe_2O_3.2P_2O_5 8H_2O$. Occurs in sheaf-like crystalline groups as in crustations. (Dana)

Chalcosina (Mex.). Sulphide of copper; chalcocite. (Dwight)

Chalcostibite. A lead-gray copper-antimony sulphide, $Cu_2S.Sb_2S_3$. Called also Wolfsbergite. (Dana)

Chalcotrichite. A variety of cuprite in which the crystals are slender and hair-like. (Ransome)

Chalder (Scot.). A measure of weight. The Perth chalder was 5 tons, the River Forth chalder 30 cwts., the Hurlet chalder 2 tons (Barrowman).

Chalder wagon (No. of Eng.). *See* Chaldron.

Chaldron. Thirty-six bushels. In Newcastle 53 hundredweight avoirdupois. Chaldron wagons, containing this quantity, convey the coal from the mine to the place of shipment. (Raymond)

Chalk. 1. A fine-grained, soft, white, friable variety of limestone composed of the shells of various marine animals. (La Forge)
2. To mark with chalk. (Webster)

Chalking deal (Eng.). A flat board upon which is kept an account of the work done by the miners in a certain district (G. C. Greenwell). A bulletin board.

Chalking on (No. of Eng.). Keeping an account of the number of tubs (cars) sent out of a stall or room. (Gresley)

Chalupa (Mex.). A hoist; a skip, (Halse)

Chalybeate. Impregnated with salts of iron. (Webster)

Chalybite. *See* Siderite.

Chamba (Colom.). A pit or trench, (Halse)

Chamber. 1. *See* Breast; Room; Stall. 2. *See* Springing. 3. A body of ore with definite boundaries apparently filling a preexisting cavern. 4. A powder room in mine. (Webster)

Chamber and pillar (Penn.). *See* Breast and pillar.

Chamber-and-pillar system. *See* Sublevel stoping.

Chamber deposit. A cave filled with mineral (Power). *See also* Chamber, 3.

Chamber dust. *See* Fluedust.

Chambered lode. So called when a portion of the wall of a lode is fissured and filled with ore (Power). *See also* Chamber, 3.

Chambered vein. A mineral vein filling large areas of space in ruptured rocks. (Standard). A synonym for Stockwork and applied to mercury deposits at New Almaden (Ore Dep., p. 425). *See also* Chambered lode.

Chambering. *See* Springing.

Chamber kiln. A brick or tile kiln having chambers or compartments, sometimes so arranged that they can be heated successively. (Century)

Chamburgo (Colom.). A dyke or dam for retaining water at placer mines. (Halse)

Chamfer. 1. A small groove or furrow. 2. To cut at an angle or bevel. (Webster)

Chamois. A soft, pliant leather prepared originally from the skin of the chamois, but now also from the skin of a goat or sheep (Webster). Used for separating excess mercury from gold amalgam.

Chamosite; Chamoisite. A compact or oölitic greenish-gray to black hydrous aluminum silicate. Contains iron (FeO) with but little MgO. (Dana)

Chamotte. 1. (Fr.). Burned clay used by zinc smelters. (Ingalls, p. 228)
2. The refractory portion of a mixture used in the manufacture of firebrick, composed of calcined clay or of reground bricks. (Standard)

Champa (Peru). Turf. (Halse)

Champion lode. The main vein as distinguished from branches (Raymond). The term is of Cornish origin, and is little used in the United States. Also called Mother lode; Master lode. (Century)

Champlain forge; American forge. A forge for the direct production of wrought iron, generally used in the United States instead of the Catalan forge, from which it differs in using only finely-crushed ore and in working continuously. (Raymond)

Chamuscar (Peru). A superficial roasting or calcination, to facilitate the grinding of ore. (Dwight)

Chanca (Peru and Chile). Ore sorting and spalling. (Halse)

Chancadora (Sp.). Ore breaker. (Lucas)

Chancados (Peru). Ores spalled to a uniform size. (Pfordte)

Chancadura (Chile). Crushing with a rock breaker. (Halse)

Chancar (Peru and Chile). To cob ores. (Halse)

Chance. 1. In coal mining: The opportunity a shot has to break the coal. 2. The opportunity to put in a shot in a good position. (Steel)

Chance-Claus process. An industrial process for recovering sulphur from waste containing sulphides. It comprises two steps: (a) Treatment of sulphide with carbon dioxide, forming H_2S, and (b) oxidation of H_2S to water and sulphur by air in the presence of a catalytic, as ferric oxide. (Webster)

Chance measure (Eng.). Any seam or bed of coal or other rock occupying an unusual or foreign position in the strata. (Gresley)

Change day. The day when a gang of miners is transferred from day shift to night shift, or the reverse. (Weed)

Change house. A special building at mines or other works where laborers may wash, or change their clothes. Also called Dry house, Changing house, Moorhouse.

Changer and grather (No. of Eng.). A man whose duty it is to keep the pump buckets and clacks in working order about a colliery. (Gresley)

Changing bronze. The process of changing tuyères, plates, monkey, etc., at blast furnaces. (Willcox)

Changing house (Corn.). *See* Change house.

Chañgkul (Sumatra). A miner's hammer. (Lock)

Channel. 1. The deeper part of a river, harbor or strait where the current flows. 2. A closed course or conduit through which anything flows, as a tube, or duct; a gutter or trough. 3. Gravel—from being the material of which the river bed is composed. 4. In metallurgy, a sow or runner. 5. A cut along the line where rock or stone is to be split (Webster).

Channel bed (Scot.). A bed of gravel. (Barrowman)

Channeler. A machine for cutting stone in rock excavation where smooth sides are desired (Gillette, p. 551). A channeling machine.

Channeling machine. *See* Channeler.

Chanos (Chile). Pieces of metallic iron or copper, reduced in blast furnaces, and which solidfy in the forehearth. (Halse)

Chanquires (Peru). Ore sorters. (Halse)

Chap. 1. (Scot.) A customary and rough mode of judging, by sound, of the thickness of coal between two working places, by knocking with a hammer on the solid coal. 2. To examine the face of the coal, etc., for the sake of safety, by knocking on it lightly. (Gresley)
3. A blow, rap, or knock. (Webster)

Chapa (Mex.). 1. A metal plate. 2. A lock. 3. Foliated structure. (Dwight)

Chapapate (Cuba). A kind of asphalt or bitumen. Also called Mexican asphalt. (Century)

Chapapote (Mex.). Mineral pitch; asphaltum. (Halse)

Chaparral (Sp.). A thicket of dwarf evergreen oaks; any dense impenetrable thicket composed of stiff, thorny shrubs, or dwarf trees. Characteristic of Mexico and Southwestern United States. (Webster)

Chapeau de fer. A French term for an oxidized iron outcrop; gossan or iron hat. (Weed)

Chapelet. 1. A machine for raising water, or for dredging, by buckets on an endless chain passing between two rotating sprocket wheels. 2. A chain pump having buttons or disks at intervals along its chain; paternoster pump. 3. A device for holding the end of heavy work, as a cannon, in a turning lathe. (Standard)

Chapeo (Port.). Gossan. *See also* Colorados. (Halse)

Chapman shield. A pair of vertical plates of sheet iron or steel arranged with a ladle between them, which can be moved longitudinally along the front of the furnace. Its main purpose is to protect the laborer from the furnace heat. (Ingalls, p. 494)

Chaqueta (Mex.). A furnace jacket. (Dwight)

Chaquires (Peru). Ore carriers in mines. (Dwight)

Char. 1. To reduce to charcoal or carbon by exposure to heat. (Webster)
2. (Corn.). To work by the day. (Crofutt). *See also* Chare.
3. (Scot.). Coke; more usually, calcined ironstone. (Barrowman)

Charbon roux (Fr.) Brown charcoal, produced by an incomplete carbonization of wood. (Raymond)

Charco (Mex.). A pool of water. (Dwight)

Charcoal. 1. Amorphous carbon prepared from vegetal or animal substances; coal made by charring wood in a kiln or retort from which air is excluded. 2. To asphyxiate with charcoal fumes. (Webster)

Charcoal furnace, or oven. A furnace in which charcoal is made by the dry distillation of wood or other substance. (Webster)

Charcoal iron. Iron made in a furnace in which charcoal is used as a fuel. (Webster)

Charcoal pit. A charcoal furnace in the form of a pit, usually conical in shape. It is made by piling up wood and covering it with earth and sod. (Century)

Charcoal plate. Charcoal iron coated with tin (Standard). The best grade of tin plate. *See also* Tin plate.

Charcón (Colom.). A large pond or tank of water. (Halse)

Chare; Char. To work by the day without being hired regularly; to do odd jobs or chores. (Webster)

Charge. 1. The explosive loaded into a bore hole for blasting; also any unit of an explosive, as a charge of nitroglycerin or a charge of detonating composition in the blasting cap. (Du Pont)
2. To put the explosive into the hole, to arrange the fuse, or squib, and to tamp it. (Steel)
3. The materials introduced at one time or one round into a furnace. (Raymond)

Chargeman (Mid.). A man specially appointed by the manager to fire shots and to look after the men who drill the holes. (Gresley.) A shotfirer.

Charger (Corn.). An augerlike implement for charging horizontal bore holes for blasting. (Raymond)

Chargeur (Belg.). A woman or girl who loads coal into cars in the mine. (Gresley)

Charging. 1. The loading of a bore hole with explosives. (Du Pont)
2. The feeding of a blast furnace.

Charging box. A box in which ore, scrap, pig-iron, fluxes, etc., are conveyed to the furnace by means of a charging machine. (Century)

Charging machine. A machine for delivering coal, ore, or metals to a furnace, gas retort, or coke-oven. (Century)

Charging scale. A scale for weighing the various materials used in a blast furnace. (Century)

Chark. 1. To burn to charcoal; to char; to coke, as coal. 2. As a noun, charcoal, coke, cinder. (Webster)

Charnockite. A name given by T. H. Holland to an ancient series of hypersthenic gneisses in India and only intended for local use. (Kemp)

Char-oven. A furnace for charring turf. (Century)

Charque (Bol.). Native copper in large wavy plates. (Halse)

Charqueador (Mex.). 1. The striker in two-handed drilling. 2. The helper who, under the old system, sorted the material from ground worked down by the miner. *See also* Achicador. (Dwight)

Charquear (Mex.). To dip out water from pools within a mine, throwing it into gutters or pipes which will conduct it to the shaft. *See also* Achicar. (Dwight)

Charqueo (Sp.). Filling the baskets by hand. (Min. Jour.)

Charring. The expulsion by heat of the volatile constituents of wood, etc., leaving more or less pure vegetal carbon. (Raymond)

Charter (Mid.). The tonnage price paid to contract miners. (Gresley)

Charter master (Staff.). A contractor who engages to work a seam, or sometimes a small colliery, at a tonnage price for the owner, or owners, the charter master finding and paying the underground labor (Redmayne). *See also* Butty, 2.

Chase; Chess the ropes (Eng.). To run the cages up and down the shaft after the winding engine has been standing for some time, to see that all is right before men are allowed to get into the cage. (G. C. Greenwell)

Chaser. An edge wheel revolving in a trough to crush asbestos mineral without destroying the fiber (Webster). Also called Edge runner, and used in the pottery industry, and for fine crushing of ore.

Chasha (Russ.). A disintegrator for gold-bearing gravelly clays; similar to an arrastre except that it disintegrates instead of crushes.

Chasing. 1. Following a vein by its range or direction (Duryee).
2. Act or art of ornamenting metals by means of chasing tools. 3. The process of finishing up the surface of castings by polishing and removing small imperfections. (Webster)

Chasing the vein (Derb.). Following the vein along the surface by means of cast holes or prospect pits. (Hoosson)

Chasm. 1. A yawning hollow or rent, as in the earth's surface; any wide and deep gap; a cleft; fissure. (Standard)

Chatón (Sp.). A kind of coarse diamond. (Halse)

Chatoyant. Having a luster resembling the changing luster of the eye of the cat at night. (George). *See also* Cat's-eye.

Chat-roller. An ore-crushing machine, consisting of a pair of cast-iron rollers, for grinding roasted ore. (Century)

Chats. 1. (Northumb.) Small pieces of stone with ore (Raymond). (Eng.) A low grade of lead ore. Also middlings which are to be crushed and subjected to further treatment (Ure). The mineral and rocks mixed together which must be crushed and cleaned before sold as mineral. Chats are not the same as tailings, as the latter are not thrown aside to keep for future milling. (Cleveland & Aurora Mineral Land Co. *v.* Ross, 135 Missouri, p. 110)
2. Loosely used in Missouri for tailings or waste product from the concentration of lead and zinc ore.

Chatter mark. One of a series of short curved cracks on a glaciated rock surface. The individual cracks are transverse roughly to the striæ, but the course of a series of chatter marks is parallel to the striæ. (Webster)

Chaya (Chile). A wooden dish used in alluvial mining; a *batea*. (Halse)

Check. 1. A piece of tin bearing a stamped number. This is placed upon the mine cars to indicate which miner loaded the car. (Steel)
2. A ticket by which a person or thing may be identified. 3. An imperceptible crack in steel caused by uneven quenching and cooling. (Webster)
4. (Eng.). A fault. (Gresley)
5. A wall. A variation of cheek.

Check battery. A battery to close the lower part of a chute acting as a check to the flow of coal, and as a stopping to keep the air in the breasts. (Chance)

Check brakes (Aust.). An arrangement for automatically checking the speed of skip running down an incline when unattached to a rope. (Power)

Check clack (Scot.). A fixed valve in a rising main other than a delivery valve. (Barrowman) *See also* Check valve.

Checker arches. Fire brick supports built of archbrick or keys to support the checker work on the second, third, or fourth pass of hot-blast stoves. (Willcox)

Checkerboard system. *See* Bord-and-pillar method.

Checker coal. Anthracite coal that occurs as rectangular grains. (C. and M. M. P.)

Checkerwork. In a regenerative furnace, a structure of firebrick so built up that the bricks alternate with open spaces, permitting the passage of heated gases. (Webster)

Check grieve (Scot.). A person who checks the weight of mineral on behalf of the landlord (Barrowman). *Compare* Check weigher.

Checking. Temporarily reducing the temperature or the volume of the air blast on a blast furnace. (Willcox)

Check number. A number assigned to each miner by which his coal is identified, and under which its weight is entered on the coal bulletin (Steel). *See also* Check, 1.

Check-off. A method of collecting union dues, fees, and fines by withholding them from the miner's wages. (Steel)

Check-out (Scot.). The meeting of the roof and floor, the coal seam being thereby cut off (Barrowman). To pinch out.

Check puller. A person who takes the miner's checks from the cars and calls the number on them to the weighman. (Steel)

Check valve. An automatic nonreturn valve; or a valve which permits a fluid to pass in one direction, but automatically closes when the fluid attempts to pass in the opposite direction. (Nat. Tube Co.)

Check viewer (Eng.). A man employed by the lessor to see that the provisions of the lease are duly observed. (G. C. Greenwell)

Checkweigher (Scot.). One who takes account of mineral raised on behalf of the miners; a justiceman (Barrowman). A checkweighman. *Compare* Check grieve.

Checkweighman (Aust.). *See* Checkweigher.

Cheeks. 1. The sides or walls of a vein. 2. Extensions of the sides of the eye of a hammer or pick. (Raymond)
3. (Eng.). Projecting masses of coal. (Gresley)

Cheese box. A name given to a cylindrical still, used in the distillation of kerosene in the United States. (Mitzakis)

Cheese clack (Scot.). A temporary clack (valve) inserted between two pipes. (Barrowman)

Cheeses (Derb.). Clay ironstone in cheese-shaped nodules. (Gresley)

Cheese weights (Aust.). The circular cheese-shaped weights used to keep guide ropes taut. (Power)

Cheestone (Derb.). A stone that by reason of a joint breaks further into the wall than usual. (Hooson)

Chemawinite. A resin related to succinite, occurring on a beach on Cedar Lake, near the mouth of the North Saskatchewan; it has a specific gravity of 1.055, its color varies from pale yellow to dark brown, and it is soluble to the extent of 21 per cent in absolute alcohol. (Bacon)

Chemical mineralogy. The investigation of the chemical composition of minerals, their method of formation, and the changes they undergo when acted upon chemically. (Century)

Chemical regeneration. A system of regenerative gas firing invented by Friedrich Siemens. (Ingalls, p. 364)

Chemist. A person versed in chemistry; one whose business is to make chemical examinations or investigations, or who is engaged in the operations of applied chemistry. (Century)

Chemistry. The science that treats of the composition of substances and of the transformations which they undergo. There are two main groups. (a) Organic chemistry, which treats of the hydrocarbons and their derivatives, and (b) inorganic chemistry treats of all other compounds, and of the elements. (Webster). *See* numerous textbooks and dictionaries which have been published on this subject for details and definitions of chemical terms.

Chemist's coal (Scot.). An ancient term given to a particular kind of hard splint coal. (Gresley)

Chemites. A word employed by M. E. Wadsworth to embrace all mineral chemical materials. (Power)

Chenevixite. A massive to compact dark-green to greenish-yellow hydrous arsenate, perhaps $Cu_2(FeO)_2As_2O_8+3H_2O$. (Dana)

Chenhall furnace. A gas-fired furnace for the distillation of zinc from zinc-lead ores. (Ingalls, p. 395)

Chenot process. The process of making iron sponge from ore mixed with coal dust and heated in vertical cylindrical retorts. (Raymond)

Cherkers (Forest of Dean). *See* Cathead, 3.

Cherry coal. A soft noncaking coal which burns readily. (Webster). A deep black, dull, or lustrous bituminous coal, with a somewhat conchoidal fracture, readily breaking up into cuboidal fragments. It ignites easily with a yellowish flame, making a hot, quick fire, and retains its shape until thoroughly consumed. Its specific gravity is much less than anthracite, about 1.30. (Chance)

Chert. A compact, siliceous rock formed of chalcedonic or opaline silica, one or both, and of organic or precipitated origin. Chert occurs distributed through limestone, affording cherty limestones. Flint is

a variety of chert. Chert is especially common in the Carboniferous rocks of southwest Missouri (Kemp). —*See also* Hornstone.

Chessy copper. Same as Chessylite; azurite. (Century)

Chessylite. A synonym for Azurite. (A. F. Rogers)

Chest. 1. A tight receptacle or box for holding gas, liquids, steam, as steam chest of an engine. (Webster)
2. (Scot.). A tank or barrel in which water is drawn from the sump. (Gresley)

Chesting (Scot.). Drawing water by means of a chest (Barrowman). *See also* Chest, 2.

Chestnut coal. 1. In anthracite only—Coal small enough to pass through a square mesh of one inch to one and one-eighth inch, but too large to pass through a mesh of five-eighths or one-half an inch. Known as No. 5 coal. (Chance)
2. (Ark.). Coal that passes through a 2-in. round hole and over a 1-in. round hole. (Steel)

Chews; Chows (Scot.). Coal loaded with a screening shovel; middling-sized pieces of coal. (Barrowman)

Chiastolite; Macle. A variety of andalusite, aluminum silicate, $Al_2O_3.SiO_2$, in which carbonaceous impurities are arranged in a regular manner along the longer axis of the crystal, in some varieties like the *X* (Greek "chi"), whence the name (U. S. Geol. Surv.)

Chicadero (Sp. Am.). A dyke, a dam (Lucas). *See also* Chamburgo.

Chicar (Colom.). To bale water out of mines (Halse). A synonym for Achicar.

Chicken ladder. *See* Muesca.

Chicuite (Sp.). *See* Chiquichuite.

Chidder. (Aust.). Slate and pyrite mixed. (Power)

Chifladero (Mex.). An ore hopper.

Chiflarse (Mex.). To waste itself (as the force of an explosion, through a fissure in the rock). (Dwight)

Chiflón (Mex.). 1. A narrow drift directed obliquely downward. 2. Any pipe from which issues water or air under pressure, or at high velocity. 3. A strong draft of air. (Dwight)

Chile. 1. (Peru) The greatest depth of a mine. (Dwight)
2. A descending gallery following the dip of a vein. 3. (Mex.) A refractory clay. (Halse)

Chilean mill; Edge runner. A mill having vertical rollers running in a circular enclosure with a stone or iron base or die. There are two classes: (a) those in which the rollers gyrate around a central axis, rolling upon the die as they go (the true Chilian mill); (b) those in which the enclosure or pan revolves, and the rollers, placed on a fixed axis, are in turn revolved by the pan. It was formerly used as a coarse grinder, but is now used for fine grinding. (Liddell)

Chile bars. Bars of impure copper, weighing about 200 lbs., imported from Chile, corresponding to the Welsh blister copper, containing 98 per cent copper. (C. and M. M. P.)

Chilenite. A soft silver-white amorphous silver bismuth, Ag_3Bi (Standard). Bismuth silver.

Chileno (Mex.). A Chilian mill. (Dwight)

Chile saltpeter. Sodium nitrate.

Chill. 1. An iron mold or portion of a mold, serving to cool rapidly, and so to harden, the surface of molten iron which comes in contact with it. Iron which can be thus hardened to a considerable depth is chilling iron, and is specially used for cast-iron railway car wheels requiring hardness at the rim without loss of strength in the wheel. (Raymond)
2. The hardened part of a casting, as the tread of a car wheel. (Webster)
3. (Derb.) To test the roof with a tool or bar to determine its safety. (Hooson)

Chilled casting. A casting which has been chilled, either by casting in contact with something which will rapidly conduct the heat from it, as a cool iron mold, or by sudden cooling by exposure to air or water. (Century)

Chilled dynamite. The condition of the dynamite when subjected to a low temperature not sufficient to congeal it, but which seriously affects the strength of the dynamite. (Du Pont)

Chill hardening. *See* Chill.

Chiluca (Mex.). A variety of porphyry. (Dwight)

Chimenea (Sp.). 1. A chimney; smokestack. 2. A hearth; a fireplace. 3. A vertical shaft; a winze. 4. (Peru). An ascending gallery following the inclination of the vein. (Halse)

Chimming (Corn.). *See* Tossing.

Chimney. 1. An ore shoot. *Compare* Chute, 2 (Raymond). 2. A steep and very narrow cleft or gully in the face of a cliff or mountain. 3. A smokestack. 4. A natural vent or opening in the earth as a volcano. (Webster)
5. (Eng.). A spout or pit in the goaf of vertical coal seams. (Gresley)
6. A term used in Virginia for limestone pinnacles bounding zinc ore deposits.

Chimney rock. A chimney-shaped body of rock rising above its surroundings, or partly isolated on the face of a steep slope. (Webster). *See also* Chimney, 6.

Chimney shot (N. Y.). A local term applied to the effect of an overcharge of explosive in a line of drill holes, the effect being to throw the rock to some distance, forming a deep trench. (Bowles)

Chimney work (Mid.). A system of working beds of clay ironstone, in patches 10 to 30 yards square, and 18 or 20 feet in thickness. The bottom beds are first worked out, and then the higher ones, by the miners standing upon the fallen débris; and so on upward in lifts. *See also* Rake (Gresley). *Compare* Overhand stoping.

China clay. Clay derived from decomposition of feldspar and suitable for the manufacture of china ware or porcelain. *See* Kaolin.

China metal. Porcelain. (Webster)

China stone. A semi-decomposed granite, which has nearly the same composition as china clay. (Ure)

Chinese pump. Like a California pump, but made entirely of wood. (C. and M. M. P.)

Chingle. 1. (Scot.). A gravel free from dirt. *See also* Shingle. 2. That portion of the coal seam stowed away in the goaves to help support the mine roof. (Century)

Chink. 1. A small rent, cleft or fissure of greater length than breadth. (Webster)
2. (Scot.). A sharp, clear, metallic sound. (Century)

Chinley coal (Eng.). Lump coal which passes over a screen; usually the best coal. (G. C. Greenwell)

Chino (Sp.). Iron or copper pyrites. (Min. Jour.)

Chiolite. A snow-white fluoride of sodium and aluminum, $5NaF.3AlF_3$, crystallizing in the tetragonal system and also occurring in massive granular form. (Dana)

Chipper (Derb.). One who chips the gangue from the ore. An ore dresser. (Hooson)

Chippy. *See* Rock drill.

Chiquichuite (Sp.). A willow basket, without a handle, used for carrying ore, etc., out of mines. Sometimes spelled Chicuite.

Chiquero (Sp.). Cribbing or chocks used in timbering wide seams or lodes. (Halse)

Chirls; Churrels (Scot.). Coal which passes through a screening shovel; small coal free from dross or dirt. (Barrowman)

Chirt; Chirtt (Derb.). *See* Chert.

Chisel. *See* Bit.

Chisel draft. The dressed edge of a stone, which serves as a guide in cutting the rest. (Century)

Chispa (Mex.). 1. A spark. 2. Ore containing visible gold. A nugget. 3. Native silver in thin leaves. (Halse)

Chispeada (Batopilas, Mex.). Ore containing about 33 per cent native silver. (Dwight)

Chispiador (Peru). A gold washer in river placers. (Dwight)

Chitter. 1. (Lanc.) A seam of coal overlying another one at a short distance. 2. (Derb.). A thin band of clay ironstone. (Gresley)

Chiva (Mex.). A bar with a claw for drawing spikes (Dwight)

Chiviar (Mex.). To hunt for broken ore in waste. (Dwight)

Chiviatite. A foliated, massive, metallic, lead-gray sulphide of lead and bismuth, $2PbS.3Bi_2S_3$. (Dana)

Chloanthite. A nickel diarsenide, $NiAs_2$. (Dana)

Chloralluminite. A hydrous aluminum chloride, $AlCl_3+H_2O$, that occurs as a volcanic product. (Standard)

Chloralum. An impure aqueous solution of aluminum chloride used as an antiseptic. (Webster)

Chlorapatite. *See* Apatite.

Chlorastrolite. Not a definite mineral but probably a mixture of zeolites. Found as small, light bluish-green pebbles, with finely radiated structure, on Isle Royale, Lake Superior. Used as a gem. (U. S. Geol. Surv.)

Chlorate powder. A substitute for black powder in which potassium chlorate is used in place of potassium nitrate. This class of explosive has received little attention on account of greater sensitiveness to shock and friction. (Brunswig, p. 302)

Chloride. 1. A compound of chlorine with another element or radical. A salt of hydrochloric acid. (Webster)
2. To follow a thin vein or discontinuous ore deposit by irregular workings, intent only on extracting the profitable parts and with no regard for development; usually said of a lessee, sometimes of one who works another's mine without permission. The term is said to have originated at Silver Reef in southwestern Utah when the rich silver-chloride ores were being worked. The thin seams were followed by lessees with the least possible handling of barren rock, hence the miner became a chlorider, and his operations chloriding. The words were later extended to similar workers and their operations in other fields. (F. L. Hess)

Chlorider. *See* Chloride, 2.

Chlorides (Pac.). A common term for ores containing chloride of silver. (Raymond)

Chloridize. To convert into chloride. Applied to the roasting of silver ores with salt, preparatory to amalgamation. (Raymond)

Chlorination process. The process first introduced by Plattner, in which auriferous ores are first roasted to oxidize the base metals, then saturated with chlorine gas, and finally treated with water, which removes the soluble chloride of gold, to be subsequently precipitated and melted into bars. (Raymond)

Chlorine. An element, commonly isolated as a greenish-yellow gas, of an intensely disagreeable suffocating odor and exceedingly poisonous. Symbol, Cl; atomic weight, 35.46. Specific gravity, 2.5. (Webster)

Chlorine minerals. Minerals containing chlorine, such as atacamite, boracite, apatite, carnallite, cerargyrite, halite, mimetite, pyromorphite, sal-ammoniac, sylvite, sodalite, vanadinite, wernerite, etc. (A. F. Rogers)

Chlorite. 1. A silicate of aluminum with ferrous iron and magnesium and chemically combined water, characterized by the green color common with silicates in which ferrous iron is prominent. (Dana)
2. A general name for the green, secondary, hydrated silicates, which contain aluminum and iron, and which are especially derived from augite, hornblende, and biotite. Chlorite is used as a prefix for various names of rocks that contain the mineral, such as chlorite schist. The name is coined from the Greek word for green. (Kemp)
3. In chemistry, a salt of chlorous acid. (Webster)

Chlorite slate. A schistose or slaty rock consisting largely of chlorite. (Webster)

Chloritic sand. Sand colored green by chlorite as a constituent. (Comstock)

Chloritic schist. Schist containing chlorite. (Hitchcock)

Chloritization. Metamorphic alteration of other material into chlorite. (Standard)

Chlorocyanic. Consisting of chlorine and cyanogen combined. (Century)

Chloromelanite. A dark green, nearly black variety of jadeite. (Century)

Chloropal. A green, opal-like hydrous silicate of iron, $Fe_2O_3.3SiO_2.5H_2O$. (Dana)

Chlorophane. A variety of fluorspar which exhibits a bright green phosphorescent light when heated. (Century)

Chlorophyr. A name given by A. Dumont to certain porphyritic quartz diorites near Quenast, Belgium.

Chlorospinel. A variety of spinel, grass-green in color, due to the presence of copper. Contains iron replacing the aluminum; $MgO(Al,Fe)_2O_3$. Also called Magnesium-iron spinel. (Dana)

Chlorotile. A green, hydrated copper arsenate, $Cu_3(AsO_4)_2.6H_2O$, that crystallizes in the orthorhombic system. (Standard)

Chocar (Colom.). To break up the auriferous gravels, cement rock, etc., with water, using bars and other tools, in order that the loosened material may be conducted to the ground sluice. (Halse)

Chock. 1. A square pillar for supporting the roof, constructed of prop timber laid up in alternate cross-layers, in log-cabin style, the center being filled with waste. Commonly called Crib in Arkansas (Steel). *See* Cogs, *also* Nog.
2. A square pillar constructed of short rectangular blocks of hardwood, for supporting the roof. (Gresley)
3. Two blocks of hardwood placed across the rail or between rails to prevent tubs, cars, or wagons from running down incline. (Greenwell)

Chock and block (Newc.). Tightly filled up. (Min. Jour.)

Choclo de oro (Peru). A mass of native gold (say 1 oz. or more) in its matrix. (Dwight)

Chocolate. A very fine-grained mica schist found in New Hampshire and used extensively in the manufacture of scythe stones, axe stones and knife stones. (Pike)

Chocolón (Mex.). 1. The part of the hole remaining in the rock after a blast. 2. A hitch cut in the rock. (Dwight)

Chocú (Peru). A disease caused by inhaling fine mineral dust, as in a stamp mill. (Dwight)

Chogs (York.). Blocks of wood for keeping pump-trees or other vertical pipes plumb (Gresley). *See* Collar, 6, and Collaring, 1.

Choke crushing. A recrushing of fine ore due to the fact that the broken material cannot find its way from the machine before it is again crushed. *See also* Free crushing. (Richards, p. 98)

Choke damp. 1. A mine atmosphere that causes choking, or suffocation, due to insufficient oxygen. As applied to "air" that causes choking, does not mean any single gas or combination of gases. 2. A name sometimes given in England to carbon dioxide.

Cholla (Mex.). An opening or hollow space; a small space filled with soft ore. (Dwight)

Chondrite. A meteoric stone characterized by the presence of chondrules. (Webster)

Chondrodite. One of the humite group. A basic fluosilicate of magnesium. (Dana)

Chondrule. A peculiar rounded granule of cosmic origin, usually consisting of enstatite or chrysotile. Occurs in meteorites. (Webster)

Chonkole. A Malayan spade. (Lock)

Chonolith. An injected igneous mass, so irregular in form and obscure as to relation to the invaded formations, that it can not be properly designated as a dike, sill, or laccolithic form. (Daly, p. 84)

Chop (Som.). A local term for fault. (Gresley)

Chorlo (Mex.). Tourmaline crystals. (Lucas)

Chorometry. Land surveying. (Standard)

Chorrera (Mex.). An ore shoot; a run of loose rock. (Dwight)

Chorro (Mex.). A spring of water found in mines. Jet or spout of liquid. (Dwight)

Chorroeadero (Mex.). 1. A chute for ore. 2. Loose or running ground. (Dwight)

Christmatite. A butyraceous, greenish-yellow to wax-yellow hydrocarbon from Wettin, Saxony; it has a specific gravity of less than 1 and is soft at 55° to 60° C. (Bacon)

Christobalite. A dull white silicon dioxide (SiO_2), that crystallizes in the orthorhombic system, and is closely related to tridymite. (Standard)

Chromatites. A term used by M. E. Wadsworth to include mineral coloring matter, paints, pigments, etc. (Power)

Chrome. Chromium; also, in dyeing, potassium dichromate.

Chrome steel. *See* Chromium steel.

Chrome garnet. A synonym for Uvarovite. (A. F. Rogers)

Chrome iron ore. A synonym for Chromite. (A. F. Rogers)

Chrome ocher. A clayey ocher colored green with chromium oxide. (Standard)

Chromite. A chromate of iron, $FeO.Cr_2O_3$. Contains 68 per cent chromic oxide. (U. S. Geol. Surv.)

Chromium. A brilliant tin-white, comparatively rare metal, hard, brittle, and refractory. Symbol, Cr; atomic weight, 52.0. Specific gravity, 6.8.

Chromium steel. An iron-chromium alloy that hardens intensely on sudden cooling, and is used for the manufacture of armor-piercing projectiles, safe-plates, and crushing machinery. It contains about 16 per cent chromium; does not rust under ordinary conditions and is also called Stainless steel.

Chromometer. An instrument for determining the color of petroleum and other oils. (Standard)

Chromowulfenite. A red variety of wulfenite, containing some chromium. (Chester)

Chrysoberyl. A glucinum-aluminum oxide, $GlO.Al_2O_3$, known as cat's-eye when it has a chatoyant luster. (U. S. Geol. Surv.)

Chrysocolla. A hydrous copper silicate. Contains theoretically about 36 per cent of copper. (U. S. Geol. Surv.) Generally green or blue-green.

Chrysolite. An iron-magnesium silicate of a yellowish-green, sometimes brownish or reddish. A common mineral in basalt and diorite. Commonly called Olivine. When used as a gem it is called Peridot.

Chrysoprase. An apple-green chalcedony, the color of which is due to nickel. (U. S. Geol. Surv.)

Chrysotile. Fibrous serpentine. *See also* Asbestos. (U. S. Geol. Surv.,

Chúa (Bol. and Chile) A testing saucer. (Lucas)

Chuck. 1. That part of a machine drill which grips or holds the drill. (Gillete, p. 99)
2. A device for holding an object so that it can be rotated, as upon the mandrel of a lathe or for fixing it in a drill-press, planer, etc. (Standard)

Chuck block; Chock block. The wooden block or board which is attached to the bottom of the screen so as to raise the depth of the issue and act as a false lip to the mortar, in stamp milling. (Rickard)

Chuga (Mex.). *See* Peruña.

Chulano (Mex.). An upper drill hole. (Dwight)

Chulanista (Braz.). One who drills uppers. (Bensusan)

Chumacera (Mex.). A bearing for the shaft of a machine. (Dwight)

Chumbe. 1. (Mex. and Bol.) Zinc-blende. 2. (Colom.) A strap of colored wool for carrying a sachel or purse. (Halse)

Chumbo. 1. (Port.) Lead. 2. (Braz.) Pyrite. (Halse)

Chump (Eng.). To drill a shot hole by hand. (Gresley)

Chumpe (Peru). *See* Chumbe.

Chun (Derb.). A clay or soft gouge between two hard walls. (Hooson)

Chunked-up. Built up with large lumps of coal to increase the capacity of a car. Also called Built-up. (Steel)

Chunk mineral. In Wisconsin, applied to masses of galena as broken out of the mine. (Power)

Churchite. A hydrous phosphate of cerium. (Chester)

Churn drill. 1. Also called Cable drill or Well drill. A portable drilling equipment usually mounted on four wheels and driven by gasoline, electricity, or steam. Also applied to a stationary drill operated from a derrick as in oil-well drilling. The drill head is raised by means of a rope or cable and allowed to drop, thus striking successive blows by means of which the rock is pulverized and the hole deepened. (Bowles)
2. A long iron bar with a cutting end of steel, used in quarrying, and worked by raising and letting it fall. When worked by blows of a hammer or sledge, it is called a "jumper." (Steel)

Churns (Forest of Dean). Ironstone workings in cavern-shaped excavations. A rough chamber-and-pillar system of working. (Gresley)

Churumbela (Colom.). A micaceous and talcose schist. (Halse)

Churusca (Bol.). Copper pyrites. (Halse)

Chute. (Sometimes written shoot) 1. A channel or shaft underground, or an inclined trough above ground, through which ore falls or is "shot" by gravity from a higher to a lower level. (Raymond.) 2. (Penn.) A crosscut connecting a gangway with a heading. (Gresley.) 3. An inclined water course, natural or artificial, especially one through which boats or timber are carried, as in a dam. 4. A narrow channel with a

free current, especially on the lower Mississippi River. (Standard) 5. A body of ore, usually of elongated form, extending downward within a vein (ore shoot). The two forms of orthography of this word are of French and English origin respectively. Under chute, the original idea is that of falling; under shoot, that of shooting or branching. Both are appropriate to the technical significations of the word. An ore shoot, for instance, may be considered as a branch of the general mass of the ore in a deposit, or as a pitch or fall of ore (German, Erzfall). In England the orthography "shoot" is, I believe, exclusively employed, and this is perhaps the best as applied to ore deposits, the other being unnecessarily foreign. (Raymond)

Chute caving. The method involves both overhand stoping and ore caving. The chamber is started as an overhand stope from the head of a chute and is extended up until the back weakens sufficiently to cave. The orebody is worked from the top down in thick slices, each slice being, however, attacked from the bottom and the working extending from the floor of the slice up to an intermediate point. The cover follows down upon the caved ore (Young). Also called "Caving by raising" and "Block caving into chutes."

Chute system. *See* Glory hole system. (Young)

Chuza (Mex.). A catch basin for mercury. (Dwight)

Chuzo (Chile). A pointed tool used in washing gold in sluices, in extracting borax in large pieces, etc. (Halse)

Cianógeno (Mex.). Cyanogen. (Dwight)

Cianuro (Mex.). Cyanide. (Dwight)

Cielo (Mex.). 1. Roof; ceiling. 2. *Trabajar de cielo*, overhand stoping. (Dwight)

C. I. F. A commercial transportation term meaning "Cost, Insurance, and Freight." It is intended to cover the cost of certain goods at point of destination. (Nat. Tube Co.) Usually applied only to maritime freight.

Ciguairo; Civairo (Peru). Peacock colored. (Dwight)

Cigüeña (Mex.). A windlass; a crank. (Dwight)

Cilindros (Mex.). Rolls. (Dwight)

Cima (Mex.). Summit. (Dwight)

Cimbra. 1. (Mex.). A center for an arch. (Dwight)
2. (Colom.). Primitive stamps worked by manual labor. (Halse)

Ciminite. A name derived from the Monti Cimini in Italy, and given by H. S. Washington to a group of lavas, intermediate between trachytes and basalts. They are porpyritic in texture and are characterized by the presence of alkali feldspar and basic plagioclase, augite and olivine, with accessory magnetite and apatite. Biotite and hornblende are either absent or are insignificant. They range from 54 to 57 SiO_2, 5–9 CaO, and 3–6 MgO. *Compare* Latite. (Kemp)

Cimolite. A white, grayish or reddish hydrosilicate of aluminum. soft and claylike or chalklike in appearance. (Dana)

Cinabrio (Mex.). Cinnabar. (Dwight)

Cincel. 1. (Peru) Native silver in large masses. (Dwight)
2. (Colum.) A stone chisel used by the Indians. (Halse)

Cincho (Mex.). 1. A belt or girdle. 2. A horizontal timber used for wedging a stemple against a plank on the hanging wall. (Halse)

Cincinnatian. In the usage of the U. S. Geological Survey, the third and youngest of the series of strata comprised in the Ordovician system. Also the corresponding epoch. (La Forge)

Cinder. 1. Slag, particularly from iron blast furnaces. (Raymond)
2. A scale thrown off in forging metal. 3. Scoriaceous lava from a volcano; volcanic scoria. (Webster)

Cinder bank. Same as cinder dump. Also indicates an old dump as distiguished from one in use. (Willcox)

Cinder bed (Eng.) A stratum of the Upper Purbeck series, almost wholly composed of oyster-shells; and so named by the quarrymen from its loose incoherent composition. (Page)

Cinder block. A block closing the front of a blast furnace and containing the cinder notch. (Webster)

Cinder breakout. The slag within the furnace escaping through the brickwork. Caused by erosion, corrosion, or softening of brick by heat. (Willcox)

Cinder coal. 1. (Eng.) Coal altered by heat from an intrusion of lava. (Gresley)
2. (Aust.) A very inferior natural coke, little better than ash. (Power)

Cinder cone. A volcanic cone composed of scoria.

Cinder dock. A bed containing molds into which, in former practice, cinder was run, chilled, and then thrown into cars with forks. (Willcox)

Cinder dump. A place where cinder ladles are emptied. (Willcox)

Cinder fall. The dam over which the slag from the cinder notch of a furnace flows. (Century)

Cinder notch. The hole, about 5 or 6 feet above the iron notch, and 3 feet below the tuyères, through which slag is flushed two to three times between casts (Willcox). *See also* Cinder tap.

Cinder pig. Iron made from ores with admixture of some forge or mill-cinder (Raymond). *See also* Pig iron.

Cinder pit. Large pit filled with water into which molten cinder is run and granulated at cast or flush. (Willcox)

Cinder plate. *See* Bloomery.

Cinder runner. A trough carrying slag from skimmer, or cinder notch, to pit or ladle. *See also* Cinder notch. (Willcox)

Cinder snapper. A man who removes cinder skulls from cinder runners. (Willcox)

Cinder tap; Cinder notch. The hole through which cinder is tapped from a furnace. Also called Lurmann front. (Raymond)

Cinder tub. A shallow iron truck with movable sides into which the slag of a furnace flows from the cinder runner. (Century)

Cinder wool. A fibrous glass obtained by the action of a jet of air or steam upon molten slag as it flows from a blast furnace. Commonly called Mineral wool. (Century)

Cinnabar. A vermilion-colored mercury sulphide, HgS, 86 per cent mercury. It is the common ore of mercury and occurs as hexagonal crystals. *See also* Metacinnabarite. (U. S. Geol. Surv.)

Cinnamite. Same as Cinnamon stone. (Century)

Cinnamon stone. Essonite; a variety of garnet. (Power)

Cinta. 1. (Sp.). A surveyor's tape. 2. (Mex.). A layer or band of mineral in a vein. 3. (Colom.). Pay dirt in placers. (Halse)

Cintarrón (Sp. Am.). A bed of auriferous gravel of unusual thickness. (Lucas)

Cinteada (Mex.). A banded or ribboned structure of veins. (Halse)

Cipolino marble. A white crystalline limestone traversed by veins of greenish mica; a favorite Italian marble. (Merrill)

Circa (Latin). About; around; often used in English with numerals to denote approximate accuracy. (Webster)

Circle cutting drill. Same as Ditcher. (Bowles)

Circles (Ches.). Wavy, undulating streaks of various colors frequently seen in the sides of shafts, on the pillars, faces, and roof of rock-salt mines. (Gresley)

Circle spouts (Eng.). *See* Garland, 1.

Circuit breaker. An automatic device for breaking an electric circuit at the highest current which it may be called upon to carry (Webster). *See also* Cut-out, 3.

Circular cutting drill. *See* Ditcher.

Circular mil. A unit of area used in measuring cross-sections of wires; 0.7854 square mil (Standard). *See also* Mil.

Circular polarization. A phenomena observed in a polariscope when two plane polarized rays, propogated in the same direction, have their vibration directions at right angles to each other and differ by one-quarter of a wave-length in phase. (Dana)

Circulation. 1. The movement of the air currents of a mine. (Roy)
2. The act of moving in any course which brings the moving body to the place where its motion began. (Webster)

Cire-Perdue process. A process used in bronze casting; the lost-wax process. (Standard)

Cirque. A steep-walled, amphitheatral recess in a mountain side, generally ascribed to glacial erosion. (Webster)

Cisco (Sp.). 1. Coal broken into small bits. 2. Coal dust. (Halse)

Cispeado (Mex.). Ore of one-third silver and two-thirds calc spar. (Lucas)

Cistern. 1. An artificial reservoir or tank for holding or storing water or other liquids. (Webster)
2. The receptacle into which glass is ladled from the pots to be poured over the table in making plate glass or in casting glass; a cuvette. (Century)
3. In metallurgy, a settling tank for liquid slag, pulp, etc.

Citrate. A salt or ester of citric acid. (Webster)

Citrine; Citrine quartz. A yellow pellucid variety of quartz; false topaz. (Dana)

Civa (Mex.). A stump of a candle. (Dwight)

Civairo (Peru). A peacock color. *See also* Ciguario. (Dwight)

Clack (Corn.). A pump valve. (Raymond)

Clack door (Eng.). The opening into the valve chamber to facilitate repairs and renewals without unseating the pump or breaking the connections. (Chance). Also, an iron plate bolted to the pipe to close the opening. (Gresley)

Clack-door piece (Eng.). A cast-iron pipe having an opening in the side for access to the clack or valve.

Clack guard (Scot.). A ring to prevent undue opening of the clack. (Barrowman)

Clack lid (Scot.). The flap of a clack or stationary valve. (Barrowman)

Clack piece. The casting forming the valve chamber. (Chance)

Clack seat. The receptacle for a valve to rest on. (C. and M. M. P.)

Claco (Mex.). An old coin equal to ⅛ of a Mexican *real*. *See also* Tlaco. (Dwight)

Cladgy. A variation of claggy.

Claggy (Newc.). Adhesive. When the coal is tightly joined to the roof, the mine is said to have a claggy top (Raymond). Also spelled Cladgy.

Claggy top (Newc.). A mine roof to which coal adheres. (Min. Jour.)

Claim. 1. The portion of mining ground held under the Federal and local laws by one claimant or association, by virtue of one location and record (Raymond). Lode claims, maximum size 600 by 1,500 feet. Placer claims 660 by 1,320 feet. A claim is sometimes called a "location." *See* Mining claims. 2. (So. Afr.) The portion of land upon a goldfield to which a miner is legally entitled. A Transvaal claim has an area equal to 64,025 English square feet, and is about 155 feet along the strike of the reef, and 413 feet across the line of reef. (Skinner)

Clam (Eng.). A bracket or support for a pump (Bainbridge). A clamp.

Clamp. 1. A device for compressing and holding in position a piece or part, or holding or binding together two or more parts; usually with jaws or cheeks, at least one of them movable, that may be set together or closed by some device for obtaining leverage. 2. (Eng.) A pile of cut and dried peat. (Standard)
3. A number of bricks piled up in a particular form for burning. (Webster)
4. A pile of ore for roasting, or of coal for coking. (Century)

Clamping. The process of burning bricks in clamp. *See also* Clamp, 3. (Century)

Clamp kiln. A kiln built of sods for burning lime. (Century)

Clamshell. A hinged, two leaved self-loading scoop used in dredges, coal-ore-, and ash-loaders, and hoisting machinery. (Century)

Clanger (Eng.). *See* Clauncher, 1.

Clanny (Eng.). A safety lamp invented by Dr. W. R. Clanny in 1813. (Gresley)

Clapete. (Mex.). A clack valve. (Dwight)

Clap sill. In hydraulic engineering, a miter sill; the bottom part of the frame on which lock gates shut; a lock sill (Century)

Clarifying tank. A tank for clarifying cyanide or other solutions and frequently provided with a filtering layer of sand, cotton waste, matting, etc. (Clennell, p. 280)

Clark process. A process for softening water by the addition of slaked lime, which precipitates calcium bicarbonate by forming with it the insoluble normal carbonate. (Webster)

Claro (Sp.). An open space on the lode, from which ore has been taken. (Crofutt)

Claroline. A mineral oil used as a solvent for natural gases. (Bacon)

Clasolite. A rock composed of other rock fragments. *See* Clastic.

Clasp. 1. A snugly fitting ferrule for connecting pump rods. (Gresley)
2. Any of the various forms of catch, for holding together two objects or parts of anything. (Webster)

Classifier. 1. A machine for separating ore from gangue or for cleaning coal from slack. (Webster)
2. A machine for grading the feed to concentrators so that each individual concentrator will receive its proper feed. Classifiers may be hydraulic (Richards) or surface-current box classifiers (spitzkasten). Classifiers are also used to separate sand from slime, water from sand, and water from slime. (Richards)

Clastic. A descriptive term applied to rock formed from the fragments of other rocks; fragmental. (Kemp)

Clat. *See* Claut, 1.

Claucher. 1. (Eng.). A tool for cleaning blast holes (Bainbridge). Also called Clanger.
2. (Derb.). A piece of stone, that has a joint back of it, which becomes loose and falls when the heading has been driven past it. (Hooson)

Clausthalite. Lead selenide, PbSe. (Dana)

Claut. 1. (Scot.). A scraper with a long handle. (Barrowman)
2. Mud or rubbish heaped together. (Standard)

Clavar (Mex.). To nail; to drive a stake. (Dwight)

Clavo (Mex.). 1. Nail. 2. *C. bueno*, or *rico*, a rich pocket of ore. 3. *C. de metal*, an ore-shoot; pay-streak. (Dwight)

Clavos. 1. (Sp.) Masses of ore, and of native metals. .(Davies)
2. Iron ore; in Mexican mines, a mass of rich ore. (Standard)
3. (Sp.) Inclusions of igneous rock in a sedimentary deposit. (Halse)

Clay. A natural substance or soft rock which, when finely ground and mixed with water, forms a pasty, moldable mass that preserves its shape when air dried; the particles soften and coalesce upon being highly heated and form a stony mass upon cooling. Clays differ greatly mineralogically and chemically and consequently in their physical properties. Most of them contain many impurities, but ordinarily their base is hydrous aluminum silicate. (U. S. Geol. Surv.)

Clayband (Wales). Argillaceous ironstone in thin beds. (Gresley)

Clay bank. 1. A bank of clay. 2. A dun yellowish color. (Webster)

Clay course. A clay seam or gouge found at the sides of some veins. (C. and M. M. P.)

Clay dam. 1. (Mid.) A stopping made of puddled and well-beaten clay, from 12 in. to 36 in. thick, and rammed into the roof, floor, and sides of the excavation made to receive it. 2. A stopping consisting of two walls of stout planks placed 18 to 24 inches apart, and supported on the outside by upright props, the intervening space being filled with clay. (Gresley)

Clayer (Scot.). A rod for forcing clay into joints of strata in wet shot holes (Barrowman). *See also* Clay iron.

Clay gall. A dry, curled "clay-shaving" resulting from the drying and cracking of mud which is later embedded and flattened in a sand stratum. (Lahee, p. 86)

Clay gouge. A thin seam of clay separating ore, or ore and rock. (Weed)

Clay gun. *See* Mud gun.

Clay hog (Mid.). *See* Wash fault.

Clay hole. A cavity, in a stone, filled with clayey or sandy material. (Gillette, p. 6)

Claying. Lining a bore hole with clay, to keep the powder dry. (Gresley)

Claying bar. A rod used for making a blast hole water-tight by driving clay into its crevices, in order to protect the charge. (Century)

Clay iron. An iron rod used for ramming clay into wet drill holes (Webster). *See* Bull, 1; *also* Claying bar.

Clay-ironstone. Clayey carbonate of iron. A heavy compact or fine grained clayey looking stone, occurring in nodules and uneven beds among carboniferous and other rocks. It contains only 20 to 30 per cent of iron, and yet much of the iron produced by Great Britain is made from it. (Roy. Com.)

Clay kiln. A kiln or stove for burning clay. (Century)

Clay marl. A whitish, smooth, chalky clay; a marl in which clay predominates. (Webster)

Clay mill. A mill for mixing and tempering clay; a pug mill. (Century)

Clay pan (Aust.). A shallow depression covered with a clayey deposit which prevents the water from sinking quickly into the ground. (Webster)

Clay parting. Clayey material bound between a vein and its wall. Also called Casing and Parting. (Duryee)

Clay pit. A pit where clay is dug. (Century)

Clay pocket. A clay-filled erosion cavity in a rock ledge. (Bowles)

Clay rock. A rock made up of fine argillaceous detrital material and chiefly that derived from the decomposition of the feldspars; indurated clay, sufficiently hardened to be incapable of using as a clay without grinding, but not chemically altered or metamorphosed. (Century) Also called Clay stone.

Clay shale. Shale composed wholly or chiefly of argillaceous material, which again becomes clay on weathering. (La Forge)

Clay slate. An argillaceous rock having a slaty or fissile structure. It differs from clay shale in that it has been altered by metamorphism. (Century)

Clay stone. 1. (Aust.) A soft, earthy, feldspathic rock occurring in veins, and having the appearance of indurated clay. (Power)
2. One of the concretionary masses of clay frequently found in alluvial deposits, in the form of flat rounded disks either simple or variously united so as to give rise to curious shapes. They are sometimes almost as regular as if turned in a lathe. (Century)

Clay-stone porphyry. An old and somewhat indefinite name for those porphyries whose naturally fine groundmass is more or less kaolinized, so as to be soft and earthy, suggesting hardened clay. (Kemp)

Clead (Eng.). To cover with planks. (G. C. Greenwell)

Cleading. A lining or covering of board planks, as the lagging on a winding-engine drum. (Webster)

Clean. 1. (No. of Eng.) Free from fire damp or other noxious gases.
2. A coal seam free from dirt partings. (Gresley)
3. To undergo or perform the process of cleaning; to clean up; to make a clean-up. (Webster)

Cleaner (Scot.). A scraper for cleaning out a shot hole. (Barrowman)

Cleaner cell. A flotation cell in which the concentrates from the rougher cells are again treated for a further reduction in the amount of gangue present.

Cleanser; Clanser (Eng.). An iron tube or shell, with which a bore hole is cleaned. (Gresley)

Cleansing (So. Staff.). Clearing and making fit for traversing old gate roads; carrying out cuttings from the mine; clearing the sumps at bottom of shafts. (Min. Jour.)

Clean toe. A sufficient shattering of the material that constitutes the toe, to make its entire removal possible without excessive secondary blasting. *Compare* Toe, 1 and 2. (Bowles)

Clean-up. 1. The operation of collecting all the valuable product of a given period or operation in a stamp mill, or in a hydraulic or placer mine. (Raymond)
2. The valuable material resulting from a clean-up. (Webster)
3. To load out all the coal a miner has broken. 4. An opportunity to clean up. (Steel)

Clean-up man. 1. Usually a pensioner who keeps yard cleaned up, pulls weeds, and does odd jobs at blast furnaces. (Willcox)
2. The man who performs the operation described under Clean-up, 1.

Cleap. A cleaving crosswise of the bedding in a coal seam; a cleat. (Standard)

Clear. *See* Clean, 1 and 2.

Clearance. 1. The space between the piston at the end of its stroke and the valve face, or the end of the cylinder. (Ihlseng)
2. The space between the top or side of a car and the roof or wall.

Clearer. 1. (Eng.) Miners who undercut the coal, working at distances of say three or four yards apart along the face. (Gresley)
2. A reservoir (in salt making) into which brine is conveyed.

Clear-melting. The process of keeping the glass in a molten condition for a time sufficient to permit the impurities or uncombined substances to settle. (Century)

Cleat. 1. The main set of joints along which coal breaks when mined. (Webster)
2. A small piece of wood nailed to two planks to keep them together, or nailed to any structure to make a support for something else. (Steel)
3. (Mid.) A wooden wedge four or five inches square placed between the top of a post and the underside of a bar or cap. (Gresley)
4. (Eng.) A piece (or pieces) of wood fastened to pump spears for the purpose of steadying them, and preventing them from wearing where they pass through the collaring, and to prevent the edges of the spear plates and bolts from injuring the pumps. (G. C. Greenwell)

Cleavage. 1. In petrology, a tendency to cleave or split along definite, parallel, closely spaced planes, which may be highly inclined to the bedding planes. It is a secondary structure, commonly confined to bedded rocks, is developed by pressure, and ordinarily is accompanied by at least some recrystallization of the rock.
2. In crystallography, the property possessed by many crystalline substances, of being rather easily split parallel to one or more of the crystallographic planes peculiar to the substance (La Forge). Cleavage should not be applied to the fracturing of rocks, which is *jointing*. *See* Jointing.

Cleavage plane. The planes along which the cleavage takes place. *Compare* Joint plane.

Cleave (Scot.). One of two or more divisions of a seam, usually ironstone. (Barrowman)

Cleavings (Eng.). Divisions of beds of coal, in the direction of the laminæ, either horizontal or inclined.

Cleaving way (Corn.). A direction parallel to the bedding planes of a rock. *Compare* Quartering way. (Greenwell, p. 80)

Cleavlandite. A white lamallar variety of albite. (Dana)

Cledge (Eng.). Clay; stiff loam; also the upper stratum of certain beds of fuller's earth. (Webster)

Cleek. 1. (Scot.) To load cages at the shaft bottom or at mid-workings.
2. (Scot.) A haulage clip. (Gresley)

Cleek coal (Scot.). Coal as it comes from the mine (Barrowman). *See also* Run-of-mine.

Cleeksman; Cleekie (Scot.). An early term for the person who unhooked the baskets of coal at the shaft mouth. (Barrowman)

Cleet (Derb.). *See* Cleat, 3.

Cleugh; Cleuch. A cleft or gorge in a hill; a ravine; also a cliff or the side of a ravine. (Century)

Cleve. (Eng.). A steep hillside; a cliff. (Standard)

Cleveite. A variety of uraninite containing a large percentage of UO_3, and also rich in helium. Contains about 10 per cent of the yttrium earths. (Dana)

Cliff. 1. (Wales) Shale which is laminated, splitting easily along the planes of deposition. *See also* Bind, 1 (Gresley), Also called Clift.
2. A steep slope; a precipice. (Webster)
3. The strata of rocks above or between coal seams. (Standard)

Cliff glacier. A glacier which occupies a relatively small depression in the side of a mountain or in the escarpment of a plateau. (Century)

Clift. 1. (Eng.) Local term for shale (Redmayne). *See also* Cliff, 1.
2. A cliff (Standard). *See also* Cliff, 2.

Cliftonite. Carbon in minute cubic crystals (Dana). A form of graphitic carbon occurring in cubic or cubo-octahedral crystals in the meteoric iron of Youngdegin, West Australia. (Century)

Clinch, or Clink bolts (Eng.). Cross bolts under spear bolts to prevent the pump rods from stripping. (G. C. Greenwell)

Clinker. **1.** The product of the fusion of the earthy impurities (ash) of coal during its combustion. (Raymond)
2. *See* Cinder coal, 1.
3. A partially vitrified brick or mass of bricks. **4.** Vitrified or burnt matter thrown up by a volcano. **5.** A scale of black oxide of iron formed when iron is heated to redness in open air. (Century)

Clinker bar. A bar fixed across the top of an ash pit for supporting the rods used for clearing the fire bars. (Century)

Clinker brick. A very hard-burned brick. (Ries)

Clinkstone. *See* Phonolite.

Clinoaxis. The diagonal or lateral axis in the monoclinic system which makes an oblique angle with the vertical axis. (Webster)

Clinochlore. A silicate of aluminum and magnesium usually containing iron. Normally, $H_8Mg_5Al_2Si_3O_{18}$. (Dana)

Clinoclase. **1.** Oblique cleavage. **2.** A basic copper arsenate. *See* Clinoclasite.

Clinoclasite. A hydrous copper arsenate $Cu_3As_2O_8.3Cu(OH)_2$ or $6CuO.As_2O_5 3H_2O$. Color, internally, dark verdigris-green; externally blackish blue-green, and crystallizes in the monoclinic system. (Dana)

Clinometer. A simple apparatus for measuring by means of a pendulum or spirit level and circular scale, vertical angles, particularly dips. (Raymond)

Clinozoisite. An epidote without iron, having the composition of zoisite. (Dana)

Clinton ore. A red, fossiliferous, iron ore of the Clinton formation of the United States, with lenticular grains. Called also Dyestone, Fossil, or Flaxseed ore. (Standard)

Clip. A device similar to a clamp but smaller and for the same purpose (C. M. P.). *See also* Haulage clip.

Clipper (Eng.). A hook for attaching the bucket to the cable. Used in shaft sinking. (Bainbridge)

Clipper-off (Aust.). A boy who unfastens the clip connecting a skip to a haulage rope. (Power)

Clipper-on (Aust.). A boy who fastens skips to a haulage rope with a clip. (Power)

Clip pulley (Eng.). A wheel containing clips in the groove for gripping a wire rope. (Gresley)

Clivage (Peru). Cleavage. (Dwight)

Clive (Derb.). *See* Cliviss.

Cliviss (Eng.). A bit of turned iron, with a spring, for fastening a bucket to a rope (Bainbridge). Also called Clive; Clivvy. A variation of Clevis.

Clivvy (Eng.). *See* Cliviss. A variation of Clevis.

Clod; Clot. **1.** Soft shale or slate, in coal mines, usually applied to a layer forming a bad roof. (Raymond)
2. *See* Kettle bottom. A "clod of dirt" of greater or less diameter; thin at the edges and increasing ir thickness to the middle. (Missouri & Illinois Coal Co. *v.* Schwalb, 74 Illinois, App., p. 569).

Clod coal (Scot.). Strong homogeneous coal. (Barrowman)

Clod tops (Forest of Dean). Clay or shale beds overlying seams of coal. (Gresley)

Clog (Mid.). A short piece of timber about 3 by 6 by 24 inches fixed between the roof and a prop. (Gresley)

Clog pack (York.). *See* Chock, 1, and Nog, 1.

Clorurar (Mex.). To chloridize. (Dwight)

Close connected. Applied to dredges in which the buckets are each connected to the one in front without any intermediate link. (Weatherbe)

Closed basin. A district draining to some depression or lake within its area, from which water escapes only by evaporation. (Webster)

Closed fault. *See* Fault.

Closed fold. A fold in which the limbs (sides of the arch) have been compressed until they are parallel. (Farrell)

Closed form. A crystal form in which all the faces having a like position relative to the planes, or axes, of symmetry yield an enclosed solid. (Dana)

Closed front. An arrangement of the blast furnace without a forehearth. (Raymond)

Closed season. That portion of the year when placers cannot be worked by reason of shortage of water, due to drought or cold.

Closed top. *See* Cup-and-cone.

Close-grained. Having fine and closely arranged fibers, crystals, or texture. (Webster)

Close-jointed. A term applied to joints that are very near together. (Dale)

Close mold. A two-part flask filled by pouring through ingates. (Standard)

Close place (Scot.). A narrow drift without a separate air return. (Barrowman)

Close-poling. The placing of poles or plank close together. *See also* Poling, 2.

Close work. 1. Driving a tunnel or drifting between two coal seams. 2. (Scot.). *See* Narrow work, 3. (Gresley)

Closing apparatus (Eng.). Sliding-doors or other mechanical arrangement at the top of an upcast shaft for allowing the cages to pass up and down without disturbing the ventilation of the mine. (Gresley)

Clot. Same as Clod.

Clothing (Eng.). Brattice constructed of a coarse, specially prepared canvas. (Gresley)

Cloth oil. A name given to one of the distillates of crude petroleum (specific gravity, 0.875) which is used for oiling wood. (Mitzakis)

Clotting. The sintering or semi-fusion of ores during roasting. (Raymond)

Clour (Eng.). A small depression of roof extending into the coal. (G. C. Greenwell)

Cloustonite. A mineral related to asphalt, occurring in patches in blue limestone and in blue flags at Inganess, Orkney. It is soluble in benzol and at a red heat gives off a large amount of illuminating gas. (Bacon)

Cloy. A plastic cement mixture: applied to any clay not a natural clay. (Standard)

Clucking. The breaking of a rock by curved fractures that pass beyond the limit of the desired plane of separation. (Bowles)

Clumper (Forest of Dean). A large mass of fallen stone. (Gresley)

Clunch (Staff.). An English provincial term for any tough coarse clay. (Power)

Clutch. A coupling for connecting two working parts, as shafts, shaft and pulley, permitting either to be thrown in or out at will, as by moving a lever. (Webster)

Clutch room (Aust.). A chamber, generally underground, in which there are friction clutches that control the different haulage ropes of the various districts. (Power)

Coagulation. The state of a solute in a solvent, or of a colloidal gel, resulting from clotting or curdling; the act of changing to a curd-like condition. (Rickard)

Coak. 1. Same as Coke. 2. Same as Calk. (Standard)

Coal. A carbonaceous substance formed from the remains of vegetation by partial decomposition (U. S. Geol. Surv.) A solid and more or less distinctly stratified carbonaceous substance varying in color from dark-brown to black, brittle, combustible, and used as a fuel; not fusible without decomposition and very insoluble. In its formation the vegetal matter appears to have first taken the form of peat, then lignite, and finally bituminous coal. The latter by the loss of its bitumen has in some places been converted into anthracite or hard coal. Lignite gives a brown powder, coal a black. Lignites contain a large percentage of water and ash.

Coal apple (Aust.). A spheroidal form of coal occasionally found in certain seams. (Power)

Coal backer (Eng.). A man who is engaged in carrying coal on his back from a ship to wagons. (Century)

Coal balls (Lanc.). Calcareo-carbonaceous nodules, formed by the infiltration of water carrying calcium carbonate from the shells of an overlying shale, down into the bed of woody fragments where it segregates. (Power)

Coal barge. A barge or lighter used in the transportation of coal by water. (Century)

Coal basin. Depressions in the older rock formations, in which coal-bearing strata have been deposited. (Thompson)

Coal bearer (Scot.). *See* Bearers, 1.

Coal bearing (Scot.). The ancient custom of employing women to carry coal out of the mine. (Gresley)

Coal bed. A bed or stratum of coal. Coal seam is more commonly used in the United States and Canada. (Century)

Coal blacking. Iron founders' blacking made from powdered coal. (Webster)

Coal box (Aust.). Large bins for storing coal. (Power)

Coal brass. Iron pyrite in coal seams (Gresley). Commonly used in the plural.

Coal breaker. 1. A building containing the machinery for breaking coal with toothed rolls, sizing it with sieves, and cleaning it for market. (Raymond)
2. A machine for breaking coal.
3. A person employed to break coal. (Standard)

Coal bunker. A place for storing coal, especially in steamships for furnace use.

Coal car. A freight car designed especially for carrying coal, usually made of iron, with a drop bottom.

Coal carrier. One who or that which is employed carrying coal (Century). A railroad is a coal carrier.

Coal chute. A trough or spout down which coal slides from a bin or pocket to a locomotive tender, or to vessels, carts, or cars. (Century)

Coal clay. *See* Fire clay.

Coal-cutting machine. A machine worked by compressed air or electricity, for undercutting or channeling a bed of coal.

Coal digger. *See* Coal miner.

Coal drawing (Eng.). The operation of raising coal at a colliery. Hoisting. (Gresley)

Coal drop. A broad, shallow inclined trough down which coal is discharged from a wharf into the hold of a vessel. (Century). A coal chute.

Coal duns (Forest of Dean). Coal-measure shales. (Gresley)

Coal dust. A finely divided coal. There is a diversity of opinion as to what the term "coal dust" means; that is, how finely must coal be divided to be termed dust. Some writers base the distinction on the point whether it can be carried to considerable distances by air currents. Coal that will pass through 100-mesh screens (100 wires to the linear inch) is frequently accepted as representing mine dust. For testing explosives at the Pittsburgh station coal passed through 100-mesh is taken as standard. In the foreign galleries the practice varies between this size and coal that passes through 200-mesh.

For the consideration of coal dust as it affects mining, the writer proposes tentatively a definition based on the capacity of the dust to propagate flame in the incipient stages of an explosion, as determined at the Pittsburgh station under certain specific conditions. By this definition, coal particles passing through a 20-mesh wire sieve (20 wires to the linear inch) will be termed dust. In the Pittsburgh gallery-tests, only partial flame propagation was obtained under the prescribed conditions with coal that passed through the 20-mesh and remained on a 40-mesh sieve, but the partial propagation was sufficient to indicate that under slightly more severe conditions, namely, a larger initiating charge of black powder, the propagation might be complete. (Geo. S. Rice, Bull. 20, U. S. Bur. Mines, p. 33.) This view was strengthened by subsequent large-scale tests in the Experimental mine, operated by the U. S. Bureau of Mines, near Pittsburgh, Pa.

Coaler. 1. Anything wholly or chiefly employed in transporting or supplying coal, as a railway from coal-mining regions; also a person employed in coaling vessels. (Webster)
2. *See* Coalers.

Coalers (Colloq., U. S.). A financial term for the stocks of the anthracite coal-carrying railroads. (Standard)

Coalescent. Joined together; running together. (Emmons)

Coalette. A synonym for Briquet.

Coal exchange. A market for the sale of coal; especially a place for transactions in coal on a large scale. (Century)

Coal face. The working face of a stall or room, composed wholly of coal. (Gresley)

Coal factor. *See* Factor.

Coal fauld (Scot.). A storage place for coal. (Century)

Coal field. A region in which deposits of coal occur. Also called Coal basin when of basin-like structure. (Webster)

Coal fitter (Eng.). A coal factor (Standard). *See also* Factor.

Coal formation. A term generally understood to mean the same as the coal measures. (Davies)

Coal gas. Gas made from coal by distilling bituminous coal in retorts, and used for lighting and heating. (Webster)

Coal getter (Eng.). One who cuts, holes, hews, or mines coal in the mine (Gresley). A coal miner.

Coal hagger (No. of Eng.). One who is employed in cutting or hewing coal in the mine (Gresley). A coal miner.

Coal heaver. One employed in moving or shoveling of coal, in loading or discharging coal ships, in shoveling coal from ships' bunkers to the furnaces; a coal passer. (Century)

Coalheugh. 1. (Scot.) A mound of refuse about old mines. (Gresley)
2. (Scot.) A place where coal is dug; a coal mine. (Barrowman)

Coal hewer (Eng.). A person who digs coal; a collier; a miner. (Barrowman)

Coal hill (Scot.). Ground occupied at a pithead or mine mouth for colliery purposes. (Barrowman)

Coal hole. A hole for coal as a trap or opening in a sidewalk; a compartment for storing coal. (Webster)

Coal hulk. A vesel kept, usually at foreign stations for supplying steamers with coal. (Century)

Coaling. 1. The process of supplying or taking coal for use as in coaling a steamer, etc. (Century)
2. (Mid.). Engaged in mining coal. (Gresley)

Coalition. 1. A voluntary joining of persons or parties, for the purpose of combining their resources, as in the support of some plan or policy relating to mining operations; a combination.

Coal land. Land of the public domain which contains coal beds. (U. S. Min. Stat., pp. 724-750)

Coal master (Eng.). The owner or lessee of a coalfield or colliery. (Gresley)

Coal measures. Those strata of the Carboniferous system which contain coal.

Coal metals (Scot.). Strata in which coal seams occur. (Barrowman)

Coal meter (Eng.). One appointed to superintend the measuring of coal. (Century)

Coal mine. Any and all parts of the property of a mining plant, on the surface or underground, which contributes, directly or indirectly under one management to the mining or handling of coal. (Spring Valley Coal Co. v. Greig, 226 Illinois, p. 516; Hakason v. La Salle County Carbon Coal Co., 265 Illinois p. 167.) A colliery. *See also* Mine.

Coal miner. One who digs coal. (Roy. Com.)

Coal oil. 1. The crude oil obtained by the destructive distillation of bituminous coal. 2. That distillate obtained from such a crude oil which is used for illuminating purposes—kerosene. 3. Crude petroleum. (Bacon)

Coal passer. One whose duty it is to pass coal to the furnace of a steam engine. (Century)

Coal pipe (Eng.). 1. The carbonized annular coating or bark of a fossil plant. 2. A very thin seam of coal. *See also* Coal shed. (Gresley)

Coal pit. 1. (U. S.) A place where charcoal is made. 2. (Eng.). A place where coal is dug. A coal mine.

Coal plant. A fossil plant found in association with or contributing by its substance to the formation of coal beds. Strictly speaking, any plant species, the residue of whose individuals has entered under natural geological conditions, into the composition of coal. (Century)

Coal pocket. A structure for the storage of coal. (Century)

Coal prints (No. of Eng.). Thin films, or patches, of coal-like matter interbedded with shale. (Gresley)

Coal puncher; Pick machine. A coal cutter of the reciprocating type, used for undercutting and nicking coal. (Power)

Coal rake (Derb.). A seam or bed of coal. (Gresley)

Coal ree (Scot.). Same as Coal rith.

Coal rith; Coal ree; Coal fauld (Scot.) A sale place for coal other than at a colliery. (Barrowman)

Coal road. 1. An underground roadway or heading in coal. (C. and M. M. P.)
2. A railroad whose principal business is the haulage of coal, as from mine to industrial centers.

Coal room (Scot.). A working face in stoop-and-room workings. (Barrowman)

Coal salad (Wales). A mixture of various sorts of coal. (Gresley)

Coal seam. *See* Coal bed.

Coal seat. Same as Fire clay.

Coal shed (Eng.). A coal bed of only a few inches in thickness, and therefore unworkable. (Gresley)

Coal-sheugh. *See* Sheugh, 2.

Coal smits (York). Worthless, earthy coal. *See also* Coal smut. (Gresley)

Coal smut (Eng.). An earthy coal stratum at or near the surface. The outcrop of a coal seam (Gresley). Also called Blossom of coal.

Coal stone (Eng.). A kind of cannel coal. (Gresley)

Coal tar. A tar obtained by the destructive distillation of soft or bituminous coal, as in the manufacture of coal gas. It is a complex mixture of hydrocarbons and other substances. It is the source of many dyestuffs. (Webster)

Coal-tar naphtha. The light oil produced in the distillation of coal tar. (Bacon)

Coal-tar pitch. The residuum from the distillation of coal tar. Most of the tar is run to soft pitch with a melting point between 60° and 80° C. (Bacon)

Coal trimmer. One who is employed to stow and trim or shift coal on board vessels, either as cargo or supply for furnaces. (Century)

Coal vend. 1. (Eng.). The general sale of coal. 2. The limited quantity of coal to which each colliery was restricted by a former combination of coal operators on the Tyne. (Century)

Coal wall (Scot.). The coal face. (Barrowman)

Coal warrant (Wales). A kind of fireclay forming the floor of a coal bed. (Gresley)

Coal washery. *See* Washery.

Coal washing. *See* Washing apparatus.

Coal whipper. A laborer or a machine that raises coal out of the hold of a ship. (Webster)

Coal work. 1. (No. of Eng.). Headings driven in coal. (Gresley)
2. (Scot.). A colliery. (Barrowman)

Coal workings. A coal mine with its appurtenances; a colliery (Standard). Coal works.

Coaly rashings. Soft dark shale, in small pieces, containing much carbonaceous matter. (C. and M. M. P.)

Coarse; Coose. A name given to a vein or the material from it when it is not rich, the mineral being only thinly disseminated through it (Power). Inferior; faulty.

Coarse jigs. The jigs used to handle the larger sizes and heavier grades of ore or metal. (Weed)

Coarse lode. One not rich. *See also* Coarse. (Skinner)

Coarse metal. The regulus or copper matte obtained when smelting copper ore, containing 20 to 40 per cent copper. (Webster)

Coarse roll. A large roll for the preliminary crushing of large pieces of ore, rock, or coal. Used in stage crushing.

Coast and Geodetic Survey. A bureau of the United States Government charged with the topographic and hydrographic survey of the coast and the execution of belts of primary triangulation, and lines of precise leveling in the interior.

Coaster (Corn.). One who picks ore from the dump or abandoned mines. (Crofutt)

Coave. A sled for transporting coal in mines. (Daddow)

Cob. 1. (Corn.) To break ore with hammers. so as to sort out the valuable portion. (Whitney)
2. (Derb.) A small, solid pillar of coal left as a support for the roof. (Gresley)

Cobalt. A tough, lustrous, nickel-white metal, related to and occurring with iron and nickel. Symbol, Co; atomic weight, 58.97. Specific gravity, 8.6.

Cobalt bloom. *See* Erythrite.

Cobalt glance. *See* Cobaltite.

Cobaltina (Mex.). Cobaltite. (Dwight)

Cobaltite. A sulpharsenide of cobalt, CoAsS. Contains 35.5 per cent of cobalt. Cobalt glance. (U. S. Geol. Surv.)

Cobalt minerals. Minerals containing cobalt as linnaeite, cobaltite; erythrite; smaltite.

Cobalt ocher. The mineral erythrite. (Standard)

Cobalt pyrites. *See* Linnaeite.

Cobalt vitriol. *See* Red or Rose vitriol.

Cobbed ore (Eng.). Ore broken from veinstone by means of a small hammer. (Hunt)

Cobbing. 1. (Corn.) Breaking ore to sort out its better portions. *See also* Spall. (Raymond)
2. Rubble, as from furnace bottoms, impregnated with copper. (Standard)

Cobbing board. A flat piece of wood used in cobbing. (Century)

Cobbing hammer. A short double-ended hammer for breaking minerals to sizes. (C. and M. M. P.)

Cobble. 1. (Penn.) In metallurgy of iron, an imperfectly puddled ball which goes to pieces in the squeezer. (Raymond)
2. (Eng.) Small lump coal (Gresley). *See also* Cob coal.
3. *See* Cobblestones.

Cobblestone. A smoothly rounded stone, larger than a pebble and smaller than a bowlder. (La Forge)

Cobbling (Eng.). Cleaning the haulage road of coal which has fallen off the trams. (Gresley)

Cobcoal. A large round piece of coal. (Century)

Cobre (Sp.). Copper; *C. abigarrado*, bornite; *C. amarillo*, chalcopyrite; *C. azul*, azurite; *C. gris*, gray copper, tetrahedrite; *C. negro*, black or blister-copper; *C. roseta*, rose-copper, lngot-copper; *C. rojo*, red oxide of copper; *C. verde*, malachite; *C. virgen*, native copper. (Halse)

Cobrizo (Sp.). Coppery; cupreous; copper-bearing. (Halse)

Cob wall. A wall built of unburned clay, sometimes mixed with straw, or of straw, lime, and earth. (Century)

Cocarde ore. *See* Sphere-ore.

Coccolith. A minute calcareous body found in chalk and deep-sea ooze. It is supposed to be the secretion of a unicellular plant. (Webster)

Cocer (Sp.). To burn lime; to roast ore. (Halse).

Cocha (Peru). A settling tank (Pfordte). Also a lenticular ore deposit. (Halse)

Cochano (Venez.). A nugget. (Halse)

Coche; Cochina (Mex.). A rock-crusher; a large anvil. (Dwight)

Cochizo (Peru). Gray copper-ore. (Dwight)

Cockade ore. Cockscomb pyrite; a form of marcasite. (Power)

Cockermegs (Eng.). Timber props to support the coal while undercutting (Gresley). *Also* called Cockers.

Cockerpole. A piece of timber placed horizontally between two inclined pieces which abut against the roof and floor. (Gresley)

Cockers. *See* Cockermegs.

Cockerspraggs. Same as Cockermegs

Cockhead (Derb.). A pack to support the roof. It consists of slack or waste and is about 12 ft. in width, surmounted by a few lumps of coal. (Gresley)

Cockle. 1. (Corn.) Schorl or black tourmaline. (Whitney)
2. Any mineral occurring in dark, long crystals, especially black tourmaline or schorl. (Webster)

Cock metal. A soft alloy composed of two parts copper and one part lead. Used for making taps and cocks. (Century)

Cockschute (Welsh). Hard siliceous beds passing into conglomerates in the Coal Measures of South Wales. (Power)

Cockscomb pyrites. A variety of marcasite occurring in crestlike forms. (Webster)

Coco (Colom.). A cocoanut vessel in which to deposit auriferous sands. (Halse)

Cod (Newc.). The bearing of an axle. (Raymond)

Code. 1. A unified and coordinated body of law; especially, reenactment, in improved and systematic form, of previously existing law, whether derived from statute, prescription, or judicial decisions. 2. A system of signals or of characters used to represent letters or words, or in any way to communicate intelligence, as a cipher code, naval code, telegraphic code. *See* Telegraph. 3. A system of rules and regulations generally approved and formally applied for conduct in particular cases; as, the social code; the code of honor; the mining code. (Standard)

Código (Sp). Code of laws; *C. de minas*, mining code; law of mines. (Halse)

Cod piece (Aust.). A wooden fishplate used for connecting the segments of a curb in shafts. (Power)

Coe (Eng.). A small cabin built over the shaft. (Hunt)

Coefficient. In physics, a number commonly used in computation as a factor, expressing the amount of some change or effect under certain conditions as to temperature, length, time, volume, etc., as the coefficient of contraction, depression, discharge, displacement, efficiency, efflux, elasticity, expansion, fineness, friction, hysteresis, inertia, leakage, mobility, reduction, refraction, resistance, rigidity, safety, and velocity. (Webster)

Coestead (Eng.). A small building. *See* Coe. (Bainbridge)

Coffee-pot lamp (Aust.). An ordinary coal miner's open oil lamp, similar in shape to a coffee pot.

Coffer; Cofer. 1. (Derb.). To secure a shaft from leaking by ramming in clay behind the masonry or timbering. 2. (Corn.). *See* Mortar, 2. 3. A rectangular plank frame, used in timbering levels. (Raymond)
4. A floating dock; a caisson. (Standard)

Cofferdam. 1. A water-tight inclosure, as of piles packed with clay, from which the water is pumped to expose the bottom (of a river, etc.) and permit the laying of foundations, building of piers, dams, etc. (Webster)
2. A double bulkhead, provided in tank steamers for the purpose of isolating the oil cargo from the engine and boiler space or from holds used for other cargo, and to prevent leakage into the adjacent compartments. (Mitzakis)

Coffering. The operation of securing the shaft of a mine from the ingress of water by ramming clay in between the casing and the rock. (Century)

Coffin (Corn.). An old open-mine working, in which the ore is cast up from platform to platform. (Standard)

Cog. 1. A rock intrusion. 2. To consolidate as by hammering or rolling; also to shape by rolling and re-rolling, as in the manufacture of iron. (Webster)
3. *See* Cogs; Chock; Nog.

Cog-and-rung gin. One of the earliest appliances for hoisting the coal and water from the mine. It was a windlass fitted with a cogwheel and pinion arrangement, and worked by a horse in much the same way as horse-gins are worked. (Gresley)

Cogedor (Sp.). A collector; a sampler. (Halse)

Cogger (Eng.). One who builds cogs (Gresley). *See* Cogs.

Cogging; Coggin (So. Staff.). The propping of the roof in longwall stalls. (Gresley). *See also* Cogs; Nogs.

Cogollos (Colom.). The superficial part of an ore deposit; *C. de las vetas*, an outcrop. (Halse)

Cogs. *See* Nogs; only cogs are not squared, but simply notched where they cross each other. The interior of a structure of this kind and the spaces between the timber are usually filled with gob. They are called also Cobs, Corncobs, etc. (Raymond)

Cohesion. That force by which molecules of the same kind or of the same body are held together, so that the body resists being pulled to pieces. (Rickard)

Cohetazo (Mex.). A shot with a match, squib or detonator inserted. (Halse)

Cohete (Mex.). A blasting cartridge, a rocket; applied to a blast within a mine or outside. (C. and M. M. P.)

Coil drag. A tool to pick up pebbles, bits of iron, etc., from the bottom of a drill hole. (Raymond)

Coin silver (U. S.). The alloy of silver and copper which in the United States is accepted as the legal standard of fineness for the silver coinage, counting 90 per cent of the former metal to 10 per cent of the latter. (Standard)

Coir. Cocoanut-husk fiber (C. and M. M. P.) Used in certain metallurgical processes.

Cok (Mex.) Coke. (Dwight)

Coke. Bituminous coal from which the volatile constituents have been driven off by heat, so that the fixed carbon and the ash are fused together. Commonly artificial, but natural coke is also known. (U. S. Geol. Surv.)

Coke coal (No. of Eng.). Carbonized or partially burnt coal found on the sides of dikes (Gresley). *See also* Natural coke.

Coke drawer. A mechanical device for drawing coke from an oven. (Fulton, p. 187)

Coke iron. Iron made in a furnace using coke as a fuel. (Webster)

Coke oven. An oven used in the manufacture of coke. *See* Beehive oven; *also* By-product oven. Webster)

Coke-oven tar. Coal tar produced in by-product coke ovens in the manufacture of coke from bituminous coal. (Bacon)

Coke plate. Coke-smelted or puddled-iron coated with tin (Standard). *See also* Tin plate.

Coke scrubber. An apparatus filled with coke moistened with oil, used to purify street gas, which is forced through it. (Century)

Coke tower. A high tower or condenser filled with coke, used in the manufacture of hydrochloric acid to give a large surface for the union of a falling spray of water with the rising hydrochloric acid gas. (Century)

Coke wharf (Aust.). A platform onto which coke is pushed when discharged from an oven. (Power)

Cokey (Joplin, Mo.). A shoveler; a mucker.

Cokey herder (Joplin, Mo.). A foreman of a shovel gang.

Coking coal. The most important of the bituminous coals, which burns with a long yellow flame, giving off more or less smoke, and creates an intense heat when properly attended. It is usually quite soft, and does not bear handling well. In the fire it swells, fuses, and finally runs together in large masses, which are rendered more or less porous by the evolution of the contained gaseous hydrocarbons. (Chance)

Coking plate. A plate at the door of a furnace which uses bituminous coal, on which fresh coal is placed and allowed to coke before being spread on the fire. (Century)

Coking stoker. A mechanical stoker or device for firing a furnace which permits the coal to coke before feeding it to the grate, thus burning the fuel with little or no smoke. (Century)

Col (Fr.). A saddle or gap across a ridge or between two peaks; also, in a valley in which streams flow both ways from a divide, that part of the valley at the divide, especially if the valley slopes rather steeply away from the divide. (La Forge)

Cola. 1. (Mex.) That part of a vein which terminates in depth; tail-end of a vein. **2.** (Colom.) The lower end of a placer mine. The lower end of a ground sluice. **3.** (Sp.) The bottom layer of slag below the charge in a smelting furnace. (Halse)

Coladera (Mex.). A coarse screen. (Dwight)

Coladero. 1. (Sp.) A winze. **2.** (Colom.) Any chute or pass for ore. (Halse)

Colander shovel. An open wirework shovel used for taking salt crystals from an evaporating brine. (Century)

Colas (Sp.). Tailings from a stamp mill or any wet process. (C. and M. M. P.)

Cold bed. A platform in a rolling mill on which cold bars are stored. (Raymond)

Cold blast. Air forced into a furnace without being previously heated (Raymond). *See* Gayley process.

Cold chisel. A chisel of tempered steel, used in cutting cold metal. (Standard)

Cold-drawn. Drawn while cold or without the application of heat, as cold-drawn steel tubing. (Webster)

Cold furnace (No. of Eng.). A drift driven into an upcast shaft to convey the return air into it instead of passing it over the furnace fire. This is done to prevent the ignition of the gas in the return air. (Gresley)

Cold nose. (Western U. S.). A mining expert who underrates the value of mineral properties. (Standard)

Cold pit (Leic.). A downcast shaft. Called cold because the fresh or cold air comes down it. (Gresley)

Cold-roll. To roll while cold or without the application of heat. (Webster)

Cold-short. Brittle when cold; applied chiefly to iron and steel (Raymond). *Compare* Red-short.

Cold-shot. 1. Small round particles of iron sometimes found in the chilled part of an iron casting. (Standard)
2. Chilled by the mold in casting, or imperfect through such chilling. (Webster)

Cold-stoking. In glass making, the operation of lowering the temperature of the oven until the glass attains the proper consistency for blowing. This operation follows that of clearing. (Century)

Cold test. A name given to a test applied to lubricating oils in order to ascertain their power of withstanding low temperatures without solidifying or depositing paraffin. (Mitzakis)

Colemanite. A hydrous borate of calcium, $2CaO \cdot 3B_2O_3 \cdot 5H_2O$. The commonest source of borax in the United States. (U. S. Geol. Surv.)

Colero (Mex.). A boss in charge of *peones*. (Dwight)

Colgantes (Mex.). Hangers for suspending sets in shafts. (Halse)

Colgar el canalón (Sp. Am.). To prepare the sluice for washing; *C. el mineral*, to open a vein by driving levels; *metal colgado*, ore in sight; ore reserves. (Halse)

Colina (Mex.). A small hill. (Dwight)

Colindantes (Mex.). Neighboring mining properties, not more than 100 meters apart. (Dwight)

Collado (Sp.). A hill. (Min. Jour.)

Collar. 1. *See* Cap. 2. The collar of a shaft is the horizontal timbering around the mouth. (Raymond)
3. (No. of Eng.) The mouth of a mine-shaft. (Gresley)
4. The mouth or opening of a bore hole. (Du Pont)
5. A flat ring surrounding anything closely. (Steel)
6. (Scot.) A frame to guide pump rods; the fastening of pipes in a shaft. (Barrowman)

Collar crib (No. of Eng.). A strong polygonal wooden frame fixed in a shaft, upon which the crib or wood tubbing is bedded. (Gresley)

Collared. Designating a drill hole in rock when the hole has gained sufficient depth to hold the drill from slipping. (Gillette, p. 120)

Collaring (Eng.). Timber framing for supporting pump trees in a shaft. *See also* Chogs. (Gresley)

Collar launder (Eng.). The pipe at the top of a lift of pumps for carrying water to a cistern. (Bainbridge)

Collar of shaft (Aust.). The first wooden frame round the top of a shaft (Power). *See* Collar, 2 and 3.

Collecting rope (Aust.). An endless rope used for bringing skips from where they are left by the main haulage system to the bottom of the shaft. (Power)

Collier (Eng.). 1. Strictly speaking a man who mines coal with a pick though commonly applied to anyone who works in or about a colliery.
2. A steam or sailing vessel carrying a cargo of coal. (Gresley)
3. A coal merchant or dealer in coal. (Century)

Collier's coal. A certain weight of coal allowed periodically (once in a month or six weeks) by the owners to the men employ on the works. (Gresley)

Collier's lung. *See* Anthracosis.

Collier's ton (Eng.). A weight of often several cwt. in addition to the standard ton of 2,240 lbs. In former times as much as 28 cwt. was reckoned as one ton. (Gresley)

Colliery (Eng.). 1. A place where coal is mined, including its machinery and plant (Gresley). *See also* Coal mine.
2. The coal trade. (Standard)

Colliery bailiff (Derb). The superintendent of the colliery. (Min. Jour.)

Colliery consumption. The amount of fuel consumed in generating steam and for other purposes in and about a colliery. (Gresley)

Colliery warnings (Eng.). Telegraphic messages sent from signal-service stations to the principal colliery centers to warn managers of mines when sudden falls of the barometer occur. (C. and M. M. P.)

Collimate. 1. To bring into line, as the axes of two lenses or of two telescopes; also to make parallel, as refracted or reflected rays. 2. To determine or correct the direction of the line of sight (of a telescope) by use of a collimator, or by vertical reflection from the surface of a basin of mercury. (Standard)

Collimation axis. The straight line passing through the optical center of the object glass (of a transit) and the horizontal rotation axis perpendicular to the latter. (Webster)

Collimation plane. The plane described by the collimation axis during the revolution of a transit. (Webster)

Collimator. A fixed telescope with spider-lines in its focus, used to adjust a second telescope by looking through it in a reverse direction with the latter, so that images of the spider-lines are formed in the focus of the second telescope, as if they originated in a distant point. (Standard)

Collision waves. Two waves that are propagated in opposite directions through the burned gases, and originating at the point where two explosion waves meet. (Mellor, Chemical Statistics and Dynamics, p. 491. 1909)

Collodion. A solution of gun-cotton in ether and alcohol. It is deposited as a film on the evaporation of the ether, and is used as a coating for wounds and for photographic plates. (Standard)

Colloid. A state of matter supposed to represent a degree of subdivision into almost molecular dimensions, dispersed in a solvent. Colloidal particles possess the property of carrying electric charges, and also of failing to diffuse through a membrane, this being the original distinction between colloids and crystalloids. (Rickard)

Collom washer (Lake Sup.). A variety of jig. (Raymond)

Collophanite. A dull, colorless or snow-white hydrous calcium phosphate, $Ca_3P_2O_8+H_2O$. (Dana)

Colluvial. Consisting of alluvium in part and also containing angular fragments of the original rocks. Contrasted with Alluvial and Diluvial. (Century). Also, talus and cliff débris; material of avalanches. (Watson, p. 241)

Cologne earth. An earthy, peaty mass of lignite, or partly fossilized wood, of a deep brown color, occurring in an irregular bed of from 30 to 50 feet thick, near Cologne. (Page)

Cololite. In geology, a substance appearing to be the petrified intestines of fishes or their contents, but more probably formed of worm casts. Frequently found in the lithographic slates of the Oölite. (Century)

Colophonite. A coarse garnet of the variety andradite. So called by reason of its resinous luster and color. (Dana)

Color (Sp.). 1. Color. The shade or tint of the earth or rock which indicates ore. 2. A particle of metallic gold found in the prospector's pan after a sample of earth or crushed rock has been "panned out." Prospectors say, *e. g.*, "The dirt gave me so many colors to the panful." (Raymond)

Coloradoite. A native telluride of mercury, found in Colorado. (Century)

Colorados. 1. (Sp.). Ores impregnated with oxide of iron, and in a state of decomposition. *See also* Gossan. (Raymond)
2. (Mex.). The region of a mineral vein which includes the oxidized portion. (Dwight)
3. (Peru and Chile). Oxidized silver ores colored by copper or in which malachite or azurite predominates. (Halse)

Colors (Interference). In optical mineralogy, the colors of doubly refracting substances as seen in polarized light. (A. F. Rogers)

Colote (Mex.). A special basket used for handling earth, etc., by *cargadores;* is slung on the back, and usually provided with a short tail-rope for quick dumping. (Dwight)

Colpa. 1. (Peru) Iron sulphate. 2. (Mex.) A natural mixture of sulphate and peroxide of iron (Colcothar) in the *patio* process, and sometimes used in lieu of *magistral.* (Halse)
3. (Peru) An ore containing galena, tethrahedrite and native silver (Dwight). Any mixture of ores for smelting purposes.

Colpas (Chile). Lump-ore. (Dwight)

Colrake. A shovel used to stir lead ores during washing. (Raymond)

Columbia group. A series of fluvioglacial marine and estuarial deposits of sand and gravel, overlying the Lafayette formation along the Atlantic coast of the United States south of New York, formed in the Pleistocene during the final glacial retreat.

Columbite. A variable columbate and tantalate of iron and manganese containing preponderant columbium and grading into tantalite, in which tantalum preponderates. (U. S. Geol. Surv.)

Columbium. A metallic element of steel-gray color and brilliant luster. Tantalum, which it closely resembles chemically, is usually associated with it. Symbol, Cb; atomic weight, 93.1. Specific gravity, 7.06 to 8.4. (Webster)

Column. 1. The rising main or length of pipe conveying the water from the mine to the surface. 2. *See* Motive column. 3. A solid core cut from a bore-hole. (Gresley)
4. A kind of supporting pillar. (Webster)
5. The water above the valve in a set of pumps. (Greenwell)

Columna (Mex.). A standard for a cable-tramway; column; vertical damper. (Dwight)

Columnar structure. 1. A mineralogical structure made up of slender columns, as in some amphibole.
2. A structure common in dikes, sills, and lava sheets, consisting of parallel, more or less regular, prismatic columns, generally transverse to the rock [illegible]. (La Forge)

Column pipe. The large cast-iron (or wooden) pipe through which the water is conveyed from the mine pumps to the surface (Chance). A mounting pipe; a rising main.

Columns-of-ore. Deposits of ore in lodes having a small lateral, but considerable vertical extent (Duryee). An ore-shoot.

Comagmatic. Having certain chemical or mineral characters in common and hence regarded as derived from a common parent magma; consanguineous; said of igneous rocks in a district or region, but not necessarily including all igneous rocks of the district. (La Forge)

Comagmatic region. An area in which the igneous rocks of the same general geologic age have certain distinguishing characters in common and are regarded as comagmatic; a petrographic province. (La Forge)

Comalillo. 1. (Mex.). A damper in a furnace-flue. (Dwight)
2. A double-hearthed reverberatory furnace for making *magistral.* (Halse)

Comanche series. The Lower Cretaceous series of limestones covering nearly all Mexico, and most of Texas. (Standard)

Comb. The place, in a fissure which has been filled by successive depositions of mineral on the walls, where the two sets of layers thus deposited approach most nearly or meet, closing the fissure and exhibiting either a drusy central cavity, or an interlocking of crystals. (Raymond)

Combed veins. *See* Banded veins; *also* Comb.

Combination gas. Natural gas rich in oil vapors. Wet gas. Also called Casing-head gas.

Combination longwall. *See* Longwall method.

Combination of subslicing and stoping. *See* Sublevel stoping.

Combination shot. A blast made by dynamite and permissibles or permissible explosives and blasting powder in the same hole. It is bad practice and in many States is prohibited by law. (Du Pont)

Combination stoping. *See* Combined and underhand stoping.

Combined carbon. That portion of the carbon in iron or steel which is not visible as graphite, and is supposed to be alloyed or chemically combined with the iron. (Raymond)

Combined overhand and underhand stoping. This term signifies the workings of a block simultaneously from the bottom to its top and from the top to the bottom. The modifications are distinguished by the support used—open stopes, stull-supported stopes or pillar-supported

stopes (Young). Also known as Combined stopes, Combination stoping, Overhand stoping and milling system, and Back and underhand stoping milling system.

Combined shrinkage stoping and block caving. Also called Overhand stoping with shrinkage and simultaneous caving. In this method the orebody is worked from the top down in successive layers of much greater thickness than in top slicing. The mass of ore is weakened by a series of shrinkage stopes, which are extended up between the ribs, pillars, or blocks, which are subsequently caved. The intervening blocks are undercut and caved as in block caving. The cover follows the caved ore. (Young)

Combined side and longwall stoping. *See* Overhand stoping.

Combined stopes. *See* Combined and underhand stoping.

Combined top slicing and shrinkage stoping. In this method the orebody is worked from the top down in successive slices. In the working of each slice the unit is worked as a shrinkage stope. The broken ore serves to give lateral support to the sides of the unit and also serves as a working platform from which the back is reached. After working a unit the cover is caved. No timber mat is used. (Young.) Also known as the Kimberly method.

Combining weight. That proportional weight, referred to some standard, and for each element fixed and exact, by which an element unites with another to form a distinct compound. The combining weights are either identical with, or are some multiples or submultiples of, the atomic weight. (Webster)

Combo (Peru). A sledge for breaking ore. (Halse)

Combustible. Capable of undergoing combustion; inflammable. (Webster)

Combustible shale. A synonym for Tasmanite.

Combustion. The action of fire on inflammable materials; the act or process of burning. Chemically considered, it is a process of rapid oxidation caused by the union of the oxygen of the air, which is the supporter of combustion, with any material that is capable of oxidation. (Century)

Combustion chamber. A space over or in front of furnace where the gases from the fire become more thoroughly mixed and burnt. (Webster)

Combustion furnace. A long, narrow, portable furnace used in the combustion method. (Webster)

Combustion method. A method for the quantitative determination of carbon, hydrogen, etc., by combustion of the substance with air, oxygen, or some solid oxidizing material as copper oxide, and absorption or collection of gaseous products. It is extensively used for the analysis of organic compounds, and also for the determination of carbon in iron and steel. (Webster)

Combustion tube. A tube capable of standing considerable heat, used in the combustion method. (Webster)

Come-along. A gripping device as for stretching wire, consisting of two jaws so attached to a ring that they are closed by putting on the ring. (Webster)

Comendite. A variety of rhyolite, containing phenocrysts of sanidine, quartz, and aegirite, in a granophyric and spherulitic groundmass containing hornblende and some blue soda-amphibole, together with zircon, magnetite, titanite, tridymite, and plagioclase. The name was given by Bertolis, an Italian geologist, from a locality on the island of San Pietro, Sardinia. *Compare* Paisonite. (Kemp)

Comer (Mex.). To eat; *C. Alevanto*, to break or stope ore; *Comer los pilares*, to take out the last vestiges of mineral from sides and pillars of a mine; to rob pillars. (Dwight)

Comerse los pilares (Sp.). The same as *comer los pilares*, figuratively, to abandon a mine. (Min. Jour.)

Comet (Wales). A hand lamp with a long, torchlike flame. (Gresley)

Come water. The constant or regular flow of water in a mine proceeding from old workings or from water-bearing rocks. (Gresley)

Comillo (Sp.). A reverberatory furnace. (Min. Jour.)

Coming up to grass; Coming up to day. (Eng.). A common term used by miners for the word basset, or outcrop. (Gresley)

Comminute. To reduce to minute particles, or to a fine powder; to pulverize; triturate. (Webster)

Common iron. The poorest quality of commercial iron. (Standard)

Communication road (Scot.). An underground road between two coal mine shafts. (Barrowman)

Commutator. 1. A device for reversing the direction of an electric current, as through the primary circuit of an induction coil. 2. An attachment for the armature of a dynamo for commutating or rectifying the induced currents in the armature conductors. (Webster)

Commuting transformer. A transformer resembling a dynamo but with a revolving commutator, the other parts being stationary (Webster)

Como beds. In geology, a thin series of beds extending from Wyoming along the east base of the Rocky Mountains into Colorado, containing a rich land fauna of mammals and reptiles. They are referred either to the Upper Jurassic or Lower Cretaceous. (Standard)

Compact. Closely or firmly united or packed; solid; dense; as a compact texture in rocks. (Webster)

Company. 1. (Eng.) A number of butty colliers, or partners who work in a stall or room. (Gresley)
2. An association of persons for a joint purpose, especially for carrying on a commercial or industrial enterprise. (Webster)

Company man. A man who works for the company by the hour or by the day, such as track layers, timbermen, drivers, and cagers, as distinguished from miners who work under contract, as by the ton, yard, etc. He also brushes down the walls and roof when apparently dangerous; loads the loose rock and débris into cars and pushes them out to the haulage way. (Spring Valley Coal Co. *v.* Chiaventone, 214 Illinois, p. 314; Tygett *v.* Sunnyside Coal Co., 140 Illinois App., p. 79; Hammett *v.* Victoria American Fuel Co., 236 Federal, p. 527; Paietta *v.* Illinois Zinc Co., 257 Illinois, p. 14)

Company store. A store, selling groceries and general merchandise, owned and run by an industrial company (Webster). This type of store is common in mining and lumber camps.

Compartimiento (Sp.). Compartment of a shaft; *C. de aire*, a brattice (Halse). An air passage.

Compartment. A separate division or section of anything (Webster). Mining shafts usually are divided into two or more compartments or sections, separated by framed timbers and planking.

Compass. 1. An instrument for determining directions, usually by the pointing of a magnetic needle free to turn in a horizontal plane, as, for example, the ordinary surveyors compass though sometimes having a clinometer attached. Also, a dip-compass, for tracing magnetic iron ore, having a needle hung to move in a vertical plane. (Raymond)
2. An instrument for describing circles, transferring measurements, etc. (Webster)

Competent. In geology; 1. Combining sufficient firmness and flexibility to transmit pressure, and by flexure under thrust, to lift a superincumbent load: said of strata or of rock structure. 2. Able to transport débris of a given size: said of water streams. (Standard)

Complementary forms. In crystallography, two forms which, combined geometrically, produce a form with higher symmetry. (A. F. Rogers)

Complementary rocks. A term suggested by W. C. Brögger for the basic rocks, which, usually in the form of dikes, accompany larger intrusions of more acidic types, and "complement" them in a chemical sense. *Compare* Lamprophyre, Oxyphyre, and Radial dikes. (Kemp) The diverse differentiation products of one common magma. (Standard)

Complex. In mineralogy, containing many ingredients; compound or composite. Some geologists use the word as a noun to indicate a complex set of rocks folded together, or intricately mixed, involved, complicated, or enlarged. (Roy. Com.)

Complex fold. A fold which is cross folded, that is, one of which the axial line is folded. (Leith, p. 105)

Complex steel. An alloy steel containing more than two alloying elements, such as high-speed tool steel (Hibbard). It contains more elements than quaternary steel.

Componer con madera (Mex.). To timber a mine. (Dwight)

Composite. Made up of separate parts or elements; combined or compounded; not simple. (Standard)

Composite dike. A dike formed by two intrusions of different ages into the same fissure. (Kemp)

Composition. 1. An aggregate, mixture, mass, or body formed by combining two or more substances; a composite substance. (Webster)
2. The chemical constitution of a rock or mineral. (Power)

Composition face. In contact twin crystals, the face of actual contact. It may or may not be the twinning plane. (Standard)

Composition metal. A yellow alloy of copper, zinc, etc., used for sheathing vessels. (Standard)

Composition plane. The plane by which the two individuals of a contact twin crystal are united in their reverse positions (Dana). Also called Composition face.

Compound. 1. A distinct substance formed by the union of two or more ingredients in definite proportions by weight. (Webster)
2. A lubricant applied to the inside and outside of ropes, preventing corrosion and lessening abrasion of the rope when in contact with hard surfaces. (C. M. P.)
3. The walled or fenced inclosure of a European residence or factory in India, China, or the Malayan settlements; also, a similar inclosure containing a group of native houses (Standard). A term also used in Transvaal for the living quarters of the Kaffir miners.

Compound cradle. An apparatus composed of three tiers of blanket tables, a shaking table and a quicksilver riffle for catching gold. (Duryee)

Compound twins. In crystallography, individuals of one group united according to two or more different laws. (Standard)

Compound vein. 1. A vein or lode consisting of a number of parallel fissures united by cross fissures, usually diagonally. (Shamel, p. 139)
2. A vein composed of several minerals. (Power)

Compound ventilation (No. of Eng.). The system of dividing or splitting the air, and of ventilating the workings of a coal mine by giving to each district or panel a separate quantity of fresh air, and conveying the return air to a main air course direct from each panel. (Gresley)

Compresora de aire (sp.). An air compressor. (Lucas)

Compressed. Pressed together; compact; reduced in volume by pressure. (Webster)

Compression. 1. In steam practice, the action of the piston in compressing the steam remaining in the cylinder, after the closure of exhaust valves, into the clearance-space. (Ihlseng)
2. Also the point in the cycle of operations, at which compression occurs; the period during which compression occurs. (Webster)

Compression efficiency. The ratio of the work required to compress isothermally all the air delivered by an air compressor to the work actually done within the compressor cylinder, as shown by indicator cards, and may be expressed as the product of the volumetric efficiency (the intake pressure and the hyperbolic logarithm of the ratio of compression), all divided by the indicated mean effective pressure within the air cylinder or cylinders. (A. I. M. E., Bull. 140, p. lvii)

Compressor. *See* Air compressor.

Compromiso (Sp.). A private engagement or undertaking; also a joint-stock undertaking. (Min. Jour.)

Compuerta (Mex.). A sluice gate. (Dwight)

Común (Peru). Average ore. (Halse)

Concentrador; Concentradora (Sp.). A buddle; an ore concentrator. (Lucas)

Concentrados (Mex.). Concentrates. (Dwight)

Concentrar metal (Mex.) To concentrate ore. (Dwight)

Concentrate. 1. To increase the strength by diminishing the bulk as of a liquid or an ore; to intensify or purify by getting rid of useless material (Webster). To separate metal or ore from the gangue or associated rock. (Murray's Dict.)

2. That which has been reduced to a state of purity or concentration by the removal of foreign, nonessential, or diluting matter (Century). A product of a process of concentration, as in chemistry or metallurgy (Standard). The product of concentration (in mining). Used in plural form as "arrangements for treating the *concentrates* were complete" (Murray). Concentrates are called "ore" at Joplin, Mo.; "mineral" at Michigan copper mines, and "tailings" at Black Hawk, Colorado.

Concentrating plant. *See* Concentrator.

Concentration. 1. The removal by mechanical means of the lighter and less valuable portions of ore. (Raymond). *See* Ore dressing.
2. The act of increasing the strength of solutions by evaporating part of their water.

Concentration table. A table on which a stream of finely crushed ore and water flows downward and the heavier metallic minerals lag behind and flow off in a separate compartment. (Weed)

Concentrator. An apparatus in which, by the aid of water or air and specific gravity, mechanical concentration of ores is performed (Raymond). Also applied to the entire plant containing the various concentrating devices, or machinery. A concentration plant.

Concentric. That which has a common center with something else. (Webster)

Conchoidal. Shell-shaped. The more compact rocks such as flint, argillite, felsite, etc., break with concave and convex surfaces and are therefore said to have a conchoidal fracture. (Roy. Com.)

Concordant injection. An igneous mass injected along bedding planes. (Daly, p. 63)

Concreción (Mex.). Concretion. (Dwight)

Concrete. A mixture of sand, gravel, pebbles, or stone chippings, with cement or with tar, etc., used for sidewalks, roadways, floors, foundations, etc. (Webster)

Concretion. A spheroidal or discoidal aggregate formed by the segregation and precipitation of some soluble mineral like quartz or calcite around a nucleus, which is often a f[illegible]. (Kemp)

Concretionary. Tending to grow together. Particles of like chemical composition, when free to move, come together and form nodules of various sizes and shapes which are called concretions. Clay and ironstone nodules, balls of iron pyrite, turtle-stones, etc., are good examples. Some greenstones exhibit concretionary structure. (Roy. Com.)

Concussion table. *See* Percussion table.

Condenser. A vessel or chamber in which volatile products of roasting or smelting (*e. g.*, mercury or zinc vapors) are reduced to solid form by cooling, or in which the fumes of furnaces, containing mechanically suspended as well as volatile metallic matters, are arrested. (Raymond). The function of the condenser is often performed by the introduction of cold water, or as in distillation, by placing the condenser in another vessel through which a current of cold water passes. Condensers of special form are largely used in those oil fields where salt water is employed for the generation of steam. (Mitzakis)

Condensing lens. A lens for producing convergent light. (Luquer, p. 9)

Conduct (Aust.). *See* Cundy, 2.

Conductor. 1. A substance capable of readily transmitting electricity, heat or the like. 2. A person who conducts or leads; a guide. (Webster)
3. *See* Guides, 1.
4. A wooden cylinder 12 to 18 ft. long used in America when sinking a new oil well. The conductor, which has a slightly greater diameter than that of the first string of casing, is inserted in the drill hole, and extends from the bottom of the first casing to the floor of the derrick. The object of the conductor is to guide the casing, great care being taken to secure its absolute vertically in the first place. (Mitzakis)

Conducta. 1. (Sp.) A convoy for the safe transportation of bullion or coin overland. (Hanks)
2. (Mex.) A bullion train. The bullion carried. (Dwight)

Conduction. Transmission through, or by means of a conductor. Distinguished, in the case of heat, from convection and radiation. (Webster)

Conductivity. Quality or power of conducting or of receiving and transmitting, as of heat, electricity. (Webster)

Conduit. 1. An artificial channel, as a canal, aqueduct or pipe for conveying water or fluid. 2. A tube or trough for receiving and protecting electric wires, as telephones, etc. (Webster)

Conduit hole. A flat or nearly horizontal hole drilled for blasting up a thin piece in the bottom of a level. (C. and M. M. P.)

Conduit pipe. Wrought-iron pipe used as armor for electric wires (Nat. Tube Co.). A tubular conduit.

Cone-in-cone. 1. A curious structure, occasionally found in clay rocks, whereby two opposing and interlocking sets of cones or pyramids are developed, with their axes parallel and their bases in approximately parallel surfaces. (Kemp)
2. Coal exhibiting a peculiar fibrous structure passing into a singular toothed arrangement of the particles is called Cone-in-cone coal, or crystallized coal. (Gresley)

Confining bed. A water-tight bed above or below a stratum containing artesian water. (Lowe)

Confluence. A junction or flowing together of streams; the place where streams meet. (Standard)

Confluent. 1. A stream that unites with another; a fork or branch of a river: especially applied to streams nearly equal in size, and distinguished from affluent. 2. Flowing together so as to form one stream. (Standard)

Conformability; Conformity. The mutual relation of conformable beds. (La Forge)

Conformable. When beds or strata lie upon one another in unbroken and parallel order, and this arrangement shows that no disturbance or denudation has taken place at the locality while their deposition was going on, they are said to be conformable. But if one set of beds rests upon the eroded or the upturned edges of another, showing a change of conditions or a break between the formations of the two sets of rocks, they are said to be unconformable. (Roy. Com.)

Congenial. A term applied to rocks in which lodes become ore bearing. (Duryee)

Conglomerado (Mex.). Conglomerate. (Dwight)

Conglomerate. An aggregate of rounded and water-worn pebbles and bowlders cemented together into a coherent rock (Kemp, p. 88). Deposited by streams or waves, generally with some sorting and stratification. *Compare* Breccia.

Congo. 1. (Colom.) Fragments of iron-ore, which accompany gold in placers; a coarse black sand. 2. Iron oxide in ore veins. (Halse)

Congruent forms. In crystallography two forms which may each be derived from the other by rotation about an axis of symmetry. (A. F. Rogers)

Coniagas. The name of a mine in the Cobalt district, Ontario. It is derived from the respective chemical symbols, Co, Ni, Ag, and As.

Conical drum. The drum of a winding engine, constructed in the form of two truncated cones placed base to base, the outer ends being usually the smaller in diameter. It may also be a single cone.

Conical refraction. The refraction of a ray of light at certain points of double-refracting crystals, so that on emerging from the crystal it widens from an apex into a hollow cone (*external conical refraction*), or on entering diverges into a cone and issues as a hollow cylinder (*internal conical refraction*). (Standard)

Conichalcite. A pistachio-green to emerald-green hydrous calcium-copper arsenate, perhaps $(Cu,Ca)_3As_2O_8.(Cu,Ca)(OH)_2+\frac{1}{2}H_2O$, occurring reniform and massive, resembling malachite. (Dana)

Conkling magnetic separator. A conveying belt which passes under magnets, below which belts run at right angles to the line of travel of the main belt. The magnetic particles are lifted up against these cross belts and are thus removed. (Liddell)

Connarite. A hydrous nickel silicate perhaps, $H_4Ni_2Si_3O_{10}$; found in fragile grains having a yellowish or green color. (Dana)

Connate water. Water which was deposited simultaneously with the deposition of solid sediments, and which has not since its deposition existed as surface water or atmospheric moisture. (Meinzer)

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Connecting. The operation of joining adjacent electric blasting cap wires to each other, to connecting and leading wires, in such a way that an electric current will flow through with the least possible resistance. (Du Pont)

Connecting rod (Eng.). A rod connecting a crank pin with a beam, crosshead, piston rod, or piston as in a steam engine. (Webster)

Connecting wire. A wire of smaller gauge than the leading wire used for connecting the electric blasting-cap wires from one bore hole to those of an adjoining one. (Du Pont)

Conoscope. A form of polariscope used for examining crystals in convergent polarized light. (Webster)

Consanguinity. The genetic relationship of those igneous rocks which are presumably derived from a common parent magma. (Kemp)

Consequent. 1. Pertaining to or characterizing the earth movements which result from the external transfer of material in the process of gradation; contrast with Antecedent. (Standard)
2. Having a course or direction dependent on, or controlled by, the geologic structure or by the form and slope of the surface: said chiefly of streams and drainage. (La Forge)

Consertal. An arrangement in which irregularly shaped crystals in juxtaposition are closely fitted together, or conserted. (Iddings, p. 223)

Conservation. A conserving, preserving, guarding, or protecting; a keeping in a safe or entire state; preservation, as of mineral resources.

Conservation of energy. One of the fundamental laws that whenever a change in mode of manifestation of energy takes place, the total amount of energy remains a constant. (Liddell)

Consey (Scot.). An underground branch road in stoop-and-room workings. (Gresley)

Consideration. 1. A recompense as for service; a fee or compensation. 2. An act or process of considering; continuous and careful thought; examination; deliberation. (Webster)
3. (Aust.). An extra payment given to men working under unfavorable conditions, *e. g.*, in a wet place. (Power)

Consistency. 1. The degree of solidity or fluidity of bituminous materials. (Bacon)
2. Condition of standing or adhering together; existence, firmness, solidity. (Webster)

Constantan. An alloy of equal parts of nickel and copper: used chiefly in electrical instruments on account of its constant resistance. (Standard)

Construction account. An account in mining finance to which all construction expenses are charged. Many of the Lake Superior copper mines summarize their finances so that the cost of operation is divided into two classes, one being for general working expenses and the other for construction, sometimes classed as capital account. It includes new buildings and machinery on surface and frequently new mine openings. (Weed)

Constructional. In geology, owing its form, position, direction, or general character to building-up processes, such as accumulation by deposition or by volcanic extrusion. (La Forge)

Construction way. A temporary way or road employed for the transportation of the materials used in the construction of a railroad. (Century)

Consume. To use up; expend; waste; as in the chemical and mechanical loss of mercury in amalgamation.

Consumido (Mex.). The mercury consumed and lost in an amalgamation process. (Dwight)

Contact. 1. The place or surface where two different kinds of rocks come together. Although used for sedimentary rocks, as the contact between a limestone and sandstone, it is yet more especially employed as between ingeous intrusions and their walls. The word is of wide use in western mining regions on account of the frequent occurrence of ore bodies along contacts. (Kemp)
2. (So. Afr.) A lode of great length and between two kinds of rocks, one of which is generally an igneous intrusive. (Skinner)

Contact bed. In geology, a bed lying next to (in contact with) a formation of different character. (Century)

Contact deposit. A mineral deposit found between two unlike rocks, usually applied to an ore body at the contact between a sedimentary rock and an igneous rock (Weed). A contact lode or vein.

Contact goniometer. A cardboard or metal protractor for the measuring of crystal angles.

Contact lode. *See* Contact, 2; Contact deposit; Contact vein.

Contact metamorphism. A general term applied to the changes which take place along a contact (of an intruded igneous rock and the enclosing rocks into which it has been thrust) such as recrystallization of limestone, or the formation of the typical silicate minerals (Farrell). Metamorphism produced by the heat of an igneous intrusion. Also called Thermometamorphism, or Local metamorphism.

Contact minerals. Minerals formed by contact metamorphism. (A. F. Rogers)

Contacto (Mex.). Contact. (Dwight)

Contact process. A process for the manufacture of sulphuric acid, based on the catalytic action of finely divided platinum. It is conducted by passing the well-dried and purified burner gases through the contact apparatus, at a temperature of 350° C. and absorbing the sulphur trioxide, formed by the direct union of sulphur dioxide and oxygen, in water. (Webster)

Contact twin. The simplest type of twin, in which two portions of a crystal appear to have been united along a common plane after one portion has been rotated 180° relative to the other. The plane of contact (plane of union or the composition face) may or may not be the twinning plane (Butler). *See also* Juxtaposition twin.

Contact vein. A variety of fissure vein, between different kinds of rock occupying a typical fracture from faulting, or it may be a replacement vein formed by mineralized solutions percolating along the surface of the contact where the rock is usually more permeable and there replacing one or both of the walls by metasomatic process (Shamel, p. 143). Also called Contact deposit.

Contador. 1. (Sp.) An accountant; auditor; clerk. 2. A mechanical counter or indicator; a meter for measuring water, gas, or electricity. (Halse)

Contaminate. To make impure by contact or admixture, as by a substance that performs the function, in an ore-pulp, along with oil, of promoting the emulsification or the de-emulsification of the oil, and thereby exerts an influence upon the making of froth for the flotation of minerals. (Rickard)

Contemporaneous. Existing together or at the same time. (Webster)

Content. That which is contained; the thing or things held by a receptacle or included within specified limits (Webster). Often used in mining, as ore-content, mineral-content, copper-content, etc.

Contiguous. In actual contact; also near, though not in actual contact. (Webster)

Continental basin. A region in the interior of a continent comprising one or several closed basins. (Webster)

Continental deposits. Sedimentary deposits laid down within a general land area and deposited in lakes or streams or by the wind, as contrasted with marine deposits, laid down in the sea. (Ransome)

Continental glacier. A type of glacier covering an entire continent, or a large portion of it; an ice sheet, as the ice cap of Greenland. (Standard)

Continental plateau. A broad protuberance of the surface of the lithosphere, coinciding approximately with a continent, but including also a continental shelf. Contrasted with Ocean basin. (Webster)

Continental process. Same as the German process.

Continental shelf. A submarine plain of variable width forming a border to nearly every continent, as the submarine part of a continental plateau.

Continuous charge. A charge of explosive that occupies the entire drill hole except for the space at the top required for stemming. (Bowles)

Continuous coal cutter. A coal mining machine of the type that cuts the face of the coal without being withdrawn from the cut. (Steel)

Continuous kiln. 1. *See* Running kiln. Also called Draw kiln. 2. A kiln in which the waste heat from the hot brick chambers is used to heat the wares in other compartments still to be burned. (Ries)

Continuous process of distillation. A petroleum distillation process in which the crude oil flows slowly by gravitation through a series of stills or retorts each placed slightly lower than the preceding one. Each still has a carefully maintained temperature, and yields, therefore, continuously a product of given volatility. (Mitzakis)

Contorted. Bent or twisted together. Used where strata are very much folded or crumpled on a considerable scale. If on a small scale they are said to be corrugated. (Roy. Com.)

Contortion. The folding, and bending to which rock strata have been subjected. (Oldham)

Contour. 1. The outline of a figure or body; periphery. 2. The outline of the surface of the ground with respect to its undulation (Webster). 3. An imaginary line on the surface of the ground, every point of which is at the same altitude. (La Forge)

Contour interval. The difference in elevation between consecutive contour lines. (Webster)

Contour line. *See* Contour, 3.

Contour map. A map showing the configuration of the surface by means of contour lines drawn at regular intervals of elevation as one for every twenty feet, a crowding of the contour lines indicating steepness. (Webster)

Contour race. A water-course following the contour of the country. (Lock)

Contra (Sp.). The person who carries away the material dumped at the mouth of a shaft; *C. cañon*, drift in country rock, parallel with drift on vein; *C. cielo*, top of a drift; a raise; *C. mina*, countermine; a communication between mines, or a tunnel communicating with a shaft; *C. pozo*, a raise; *C. sena*, bell-signal. (Dwight). *C. tiro*, an auxiliary shaft contiguous to a main shaft, to serve as a footway, or for ventilation. (Min. Jour.)

Contraction. Shrinking. Rocks in passing from a vitreous to a crystalline texture shrink considerably, which may account for the subsidence of certain areas. The whole globe of the earth has shrunk by cooling. (Roy. Com.)

Contraction vein. A vein formed by the filling of a space caused by contraction due to the drying or cooling of the surrounding rock. (Power)

Contrafuerte (Sp. Am.) Part of a lode left intact. (Lucas)

Contraguía (Mex.). A movable guide pulley over shaft. (Dwight)

Contra-lode. *See* Cross course.

Contranatural (Mex.). A vein having a contrary dip to other veins of the same system. (Halse)

Contrata (Sp.). A deed, contract, or agreement. (Halse)

Contratanque (Mex.). A second settling tank. (Halse)

Contratiro (Mex.). An auxiliary shaft to serve as a footway, or for ventilation. (Halse)

Contratista (Mex.). A contractor. (Dwight)

Contrato (Mex.). A pact or agreement between parties to perform some act; a contract. (Dwight)

Control assay. An assay made by an umpire to determine the basis on which a purchaser shall pay the seller for ore. *See also* Umpire, 2.

Convection. A process of transmission, as of heat, by means of currents in liquids or gases, resulting from changes of temperature or other causes. (Webster)

Convenio (Sp.). A legal agreement. (Min. Jour.)

Convergent light. Light tending to one point or focus. (Webster)

Converse lock joint. A joint, for wrought pipe, that is made up with a cast-iron hub. (Nat. Tube Co.)

Converter. 1. An electric transformer (Standard). 2. A vessel in which metals or other materials are changed or converted from one shape or condition to another. Specifically an oval-shaped vessel or retort, hung on an axis, made of iron and lined with some refractory material, in which molten pig-iron is converted by the Bessemer process into steel (Century). Also used in converting copper matte.

Converting. *See* Bessemer process. The process was applied to the metallurgy of copper by Pierre Manhés. Air is blown through molten copper matte in the presence of free silica. The iron is oxidized to FeO which forms a slag with the silica; the sulphur is oxidized and goes off as SO_2. (Liddell)

Converting coal (Mid.). A local name given to coal suitable for steel-making purposes at Sheffield. (Gresley)

Conveyer; Conveyor. 1. One who or that which conveys, transports, or transfers; specifically, any mechanical contrivance for conveying material in the working of mills, elevators, etc., such as endless chains, etc. (Standard)

Convoy (Eng.). A wooden brake formerly aplied to one of the wheels of a coal wagon. (G. C. Greenwell)

Convulsion. A sudden and violent disturbance of the order of the rocks; a terrestrial catastrophe; cataclysm. (Standard)

Cooler arch. An opening of truncated-cone shape in tuyère breast of furnace. The tuyère cooler is placed in it. (Willcox)

Cooling. Applied to minerals having the taste of saltpeter. (Dana)

Cooling floor. A floor upon which hot ore is placed for the purpose of cooling. (Rickard)

Cooling tower. A device for cooling the water used in a steam condenser or refrigerating plant. (Century)

Coom (Scot.). 1. Wooden centering for an arch; hence the roof of a mine or roadway is said to be coomed when it is arch-shaped. 2. Soot; the dust of coal. (Barrowman)

Coor (Eng.). A period of six or eight hours' work by miners, making four or three periods to the day of twenty-four hours. *See* Core, 1. (Bainbridge). A Shift.

Coorongite. A South Australian elaterite, or mineral caoutchouc. (Bacon)

Coose. *See* Coarse lode.

Copador (Mex.). Blacksmith's fuller. (Dwight)

Copajira (Bol.). Acid water in mines. (Halse)

Copal. An oxygenated hydrocarbon; a fossil resin. (Dana)

Copalillo (Mex.). Zincblende. (Dwight)

Copaline. Same as Copalite.

Copalite. An oxygenated hydrocarbon resembling copal, from the blue clay of Highgate, near London, England. (Dana)

Cope. 1. (Derb.) To contract to mine lead ore by the dish, load, or other measure. 2. The upper part of a flask, separable from the lower part. *See also* Drag, 3. (Raymond)
3. An exchange of working places between miners, sometimes spelled Coup. (C. and M. M. P.)
4. (Derb.). A duty or royalty paid to the lord or owner of a mine. (Hooson)

Copela. (Sp.) 1. A cupel. 2. The test of a cupelling furnace. (Halse)

Copelar (Sp.). To assay by cupellation. (Halse)

Copelilla (Mex.). Lead carbonate. (Dwight)

Copella (Sp.). Dry amalgam remaining in the bag after draining. (Egleston)

Coper (Derb.). One who contracts to mine lead ore at a fixed rate (Raymond). A Derbyshire miner.

Copi. Gypsum, generally weathered. (Power)

Copiapite. A basic ferric sulphate, perhaps $2Fe_2O_3.5SO_3.18H_2O$ (Dana). Also called Yellow copperas, and Misy.

Coping. 1. The top or cover of a wall usually made sloping to shed water. (Century)
2. In marble works the process of trimming the edges of slabs of stone (Bowles). *See also* Coping machine.

Coping machine. A machine, consisting of a gearing and a carborundum wheel for cutting and trimming marble slabs, as for base boards, tile, etc. (Bowles)

Copos (or Pasillas) (Sp.). In amalgamation, little globules into which the quicksilver forms, when the process is too quick. (Min. Jour.)

Coppel. Same as cupel. (Standard)

Copper. A common metal of reddish color, ductile, malleable, and very tenacious. One of the best conductors of heat and electricity. Symbol, Cu; atomic weight 63.57. Specific gravity, 8.93. (Webster)

Copperas. Ferrous sulphate. Also called Green vitriol.

Copperasine. A sulphate of iron and copper resulting from the decomposition of chalcopyrite. (Standard)

Copperas stone. A synonym for Pyrite, from which copperas is often made. (Chester)

Copper barrilla (Bol.). Native copper in granular form mixed with sand. *See* Coro-Coro, *also* Barrilla.

Copper bath. A solution of copper salt, as the sulphate used in electroplating. (Standard)

Copper bottoms. A metallic product of very indefinite composition, made (usually) in reverberatory furnaces by smelting rich cupriferous substances without sufficient sulphur to quite satisfy the copper present. (Peters, p. 227)

Copper glance. *See* Chalcocite.

Copperization. Impregnation with copper, or some preparation containing copper. (Century)

Copper loss. Electric energy wasted in the copper conductors of a dynamo, motor or conducting system. (Webster)

Copper minerals. Minerals containing copper, as atacamite, azurite, bornite, bournonite, brochantite, chalcanthite, chalcocite, chalcopyrite, chrysocolla, copper, covellite, cuprite, enargite, malachite, melaconite, olivenite, stannite, tetrahedrite, and others.

Copper nickel. *See* Niccolite.

Copper pickers (Mich.). Laborers who sort vein material in which there is more or less native copper. (Sanders, p. 89)

Copper plates (Aust. and Pac.). The plates of amalgamated copper over which the auriferous ore is allowed to flow from the stamp battery, and upon which the gold is caught as amalgam. (Raymond)

Copper powder. A bronzing powder made by saturating nitrous acid with copper, and precipitating the latter by the addition of iron. The precipitate is then thoroughly washed. (Century)

Copper pyrite. Same as Chalcopyrite. (Standard)

Copper rain. Minute globules thrown up from the surface of molten copper, when it contains but little suboxide. (Raymond)

Copper slate. Slate impregnated with copper minerals. (Duryee)

Copper smoke. The gases from the calcination of sulphide copper ore (Raymond). Sulphur dioxide is an important constituent.

Copper sulphate. *See* Chalcanthite.

Copper uranite. *See* Uranite; Torbernite.

Copper vitriol. *See* Chalcanthite.

Coprolite. A piece of petrified dung; a fossil excrement. Such remains are found in many geological formations. (Webster)

Copt (Aust.). A capsized or broken skip. (Power)

Coquimbite. A granular, massive, hydrous ferric sulphate, $Fe_2(SO_4)_3 + 9HO$. (Dana)

Coquina (Sp.). A coarse-grained, porous, friable variety of limestone, made up chiefly of fragments of shells of living or recently extinct species of mollusks and of coral, cemented together as rock. (La Forge)

Coracite. An alteration product of uraninite partly changed to gummite. (Standard)

Corahuari (Peru). A green copper ore. (Halse)

Coral. The solid secretion of coral polyps, composed almost wholly of calcium carbonate, which forms reefs and treelike and globular masses. (La Forge)

Coral limestone. A limestone composed of coral fragments. Such a rock is much used in the Bermuda Islands. (Ries)

Coralline. Pertaining to, composed of, or having the structure of corals; as coralline limestone.

Coralloidal. Like coral, or consisting of interlaced flexuous branchings. (Dana)

Coral mud. The sediment or mud formed by the disintegration of coral. (Century)

Coral ore. A curved, lamellar variety of liver-colored cinnabar from Idria, Austria. (Standard)

Coral rag (Eng.). The upper member of the Middle Oölite, so called because it consists, in part, of continuous beds of corals, for the most part retaining the position in which they grew, and sometimes forming masses 15 feet thick. (Page)

Coral zone. The depth of the sea at which corals abound. (Century)

Corbond. An irregular mass or "dropper" from a lode. (Raymond)

Cord. A cubic measure used especially for wood cut for fuel. It is, now legally in the United States, a pile 8 ft. long, 4 ft. wide and 4 ft. high, or 128 cu. ft. (Webster)

Cordeau. A trade name for a type of detonating fuse consisting of trinitrotoluene inclosed in a lead tube. (Bowles)

Corder (Eng.). The man who makes and repairs corves (small cars). (Bainbridge)

Cordierite. A magnesium-iron-aluminum silicate. Sometimes used as a gem. (U. S. Geol. Surv.) A synonym of iolite or dichroite, employed as a prefix to those rocks that contain the mineral, as cordierite-gneiss. (Kemp)

Cordillera. Strictly, a continuous chain or range of mountains. Generally, a whole mountain province, including all the subordinate mountain ranges and groups and the interior plateaus and basins. Specifically, (capitalized), the great mountainous region of western North America, lying between the Central Lowland and the Pacific Ocean, and extending from central Mexico into Alaska; also called Cordilleran Province. (La Forge)

Cordirie process. The refining of lead by conducting steam through it, while molten, to oxidize certain metallic impurities. (Raymond)

Cordite. An explosive of nitroglycerin and a dope, used chiefly as a propellant. (Standard)

Cord of ore. About seven tons, but measured by wagon loads, and not by weight. The expression "cord" is a term used in some parts of Colorado, U. S., and applied only to low-grade ore; the smelting ore is reckoned by the ton. (Milford)

Cordón (Mex.). A rib or band of ore in a vein (Halse). Feeder.

Core. 1. (Corn.) A miner's underground working-time or shift (Raymond). Also spelled Coor.
2. A cylinder-shaped piece of rock produced by a core-drill. (Steel)
3. The central part of a rope forming a cushion for the strands. In wire ropes it is sometimes made of wire, but usually it is of hemp, jute, or some like material. (C. M. P.)
4. The portion of a mold which shapes the interior of a hollow casting, or which makes a hole through a casting. (Webster)
5. A cone or V-shaped mass of rock that is first blasted out in driving a tunnel. (Bowles)

Core bit. A hollow cylindrical boring bit for cutting out a core in earth boring or rock drilling (Webster). In operation it is attached to and forms part of the core drill.

Core box. The box in which the core, or mass of sand producing any hollow part of a casting is made. (Century)

Core drill. A diamond or other hollow drill for securing cores (C. M. P.); (Bowles v. Virginia Soapstone Co., 115 Virginia, p. 699). *See also* Diamond drill; Adamantine drill; Shot drill, and Calyx.

Core iron. A strengthening iron grate in a core. *See* Core, 4 (Webster). A term used in foundry practice.

Core lifter. An instrument used to bring up the core left by an annular bit in a boring. (Standard)

Core sand. A sand suitable for making cores: composed of sand, clay and horse-dung. (Standard)

Core snatcher. A company man who collects and takes care of drill cores when the drilling is being done by contract.

Corf bater; Corf bitter (No. of Eng.). A boy who cleans the dirt or mud off corves. *See* Corf, 1. (Gresley)

Corf; Corfe; Corve; Cauf (the last incorrect). 1. (Newc.) A large basket used in hoisting coal; from the Germ. *Korb*. 2. A wooden frame to carry coal. 3. A sled or low wagon for the same purpose. (Raymond)
When used for bringing up the rock from a sinking shaft the corves are made without wheels, and are more like a basket. In early days corves were wicker baskets, having wooden bows or handles: they held about 4¼ cwt. of coal (Gresley). *See* Hutch, 1.

Corf bow (Eng.). The handle of a corf. (Bainbridge)

Coribronce (Mex. and Bol.). Chalcopyrite. (Dwight)

Corindón; Corundo (Mex.). Corundum. (Dwight)

Corinthian process. *See* Carinthian process.

Cork fossil. A variety of amphibole or hornblende, resembling cork. It is the lightest of all minerals. (Century)

Cormano (Mex.) A loading chute. (Dwight)

Cornamusa (Peru). An earthen retort with a movable cover. (Dwight)

Cornbrash (Eng.). A local name for certain beds in the Oölite formation. It signifies a coarse fragmentary rock which breaks up easily, and yields a soil useful for growing corn (Oldham). Also called Cornstone.

Córnea (Peru). Horn silver. (Dwight)

Cornean (Eng.). An igneous rock, so called from its tough, compact, and horn-like texture; known also as Aphanite. (Page)

Corner break. The separation of a block of stone from a solid ledge by breaking it simultaneously along two faces meeting at a corner. (Bowles)

Corner rackings (Scot.). Triangular pieces of wood inserted in the corners of rectangular shafts to fix the barring. (Barrowman)

Corners (Wales). Bands of clay ironstone. (Gresley)

Cornet; Cornett (Fr.). In assaying, a metallic bead flattened out and made into a roll for treatment with acid. (Webster)

Corning (Scot.). Mealtime. (Barrowman)

Corning table. *See* Bilharz table.

Cornish diamond. A quartz crystal from Cornwall. (Webster)

Cornish engine. A single-cylinder, single-acting beam engine using steam expansively and regulated by an hydraulic control (Webster). *See* Cornish pump.

Cornish mining ton. A ton of 21 hundred weight of 112 pounds each, or 2,352 avoirdupois pounds. (Webster)

Cornish pump. A pump operated by rods attached to the beam of a single-acting, condensing beam-engine. The steam, pressing down the piston in the vertical steam cylinder, lifts the pump rods, and these subsequently descend by their own weight. (Raymond)

Cornish stone. China-stone or kaolin. (Standard)

Cornstone. A reddish or bluish-red concretionary limestone. Its decomposition is said to produce a good soil for the cultivation of corn, being so different from the cold, stiff, clayey soils formed over the marls (Oldham). Also called Cornbrash.

Cornubianite. A name coined by Boase from the classic name for Cornwall, England, to describe a contact hornfels, consisting of andalusite, mica and quartz. It was proposed as a substitute for the earlier but indefinite term proteolite. Bonney suggests restricting cornubianite to tourmaline hornfels. (Kemp)

Cornwallite. An emerald-green, massive, hydrous copper arsenate, $Cu_5As_2O_8.2Cu(OH)_2+H_2O$. (Dana)

Coro-coro. A dressed product of copper-works in South America, consisting of grains of native copper mixed with pyrite, chalcopyrite, mispickel, and earthy minerals (Raymond). *See* Copper barrilla; *also* Barrilla.

Corona. 1. (Sp.) The boring bit or crown of a diamond drill. 2. *C. cortante*, a cutting ring used in shaft sinking through watery strata. 3. The crown wheel of a Chilean mill. 4. (Colom.). A wooden bevel wheel used in a native mill. (Halse)

Coronadite. A manganate of lead and manganese. $(Mn,Pb),Mn_3O_7$. Resembles psilomelane in general aspect. (U. S. Geol. Surv.)

Corpa (Peru). 1. An ore containing galena, gray copper and native silver. 2. Sulphate of iron. (Dwight)

Corporal (Mid.). A district foreman in charge of the underground haulage ways. (Gresley).

Corpuscle. *See* Electron.

Corral. 1. (Mex.) A stableyard or an inclosure. (Dwight)
2. A complete set of props; crib-timbering. (Halse)

Corrasion. The wearing away of the surface of the earth through the friction of solid material transported by water or air. It is one form of erosion. (La Forge)

Correa. 1. (Mex.) A leather strap. (Dwight)
2. *Metal de correa*, nearly pure cassiterite. 3. Horizontal timbers which tie the rafters of a roof together. (Halse)

Corredero (Colom.). The bed of an ancient river; a former channel of a stream. (Halse)

Corrego (Port.). 1. A ravine. 2. An alluvial channel. 3. (Braz.) A stream where auriferous gravel is washed. (Halse)

Correlate. To put in relation with each other; to connect as by the disclosure of a mutual relation. (Webster)

Correlation. The determination of the equivalence in geologic age and stratigraphic position of two formations or other stratigraphic units in separated areas; or, more broadly, the determination of the contemporaneity of events in the geologic historys of two areas (La Forge). Fossils constitute the chief evidence in problems of correlation.

Correo (Sp.). 1. A post man. 2. Post office. 3. Mail. (Halse)

Corrido. 1. (Sp.) The strike of a vein. (Dwight)
2. *Metal C.*, alluvial ore; *Oro C.*, alluvial gold. (Halse)

Corriente. 1. (Peru) All the operations required for extracting metal on a large scale from one class of ore. (Dwight)
2. (Sp.) Current, as of a stream; *C. de aire*, an air current. (Halse)

Corrode. To eat away by degrees as by acids, caustics or other chemicals. To act corrosively; to undergo corrosion. (Webster)

Corroded crystals. Phenocrysts that after crystalization are more or less reabsorbed or fused again into the magma. (Kemp)

Corroding-lead. Refined lead sufficiently pure for the corroding process, by which white lead is manufactured. (Raymond)

Corrois (Fr.). Clay walls built to isolate a gob-fire. (Gresley)

Corrosion. The process of wearing away, disintegrating or destroying by the gradual separation of small parts or particles, especially by the action of chemical agents, as an acid (Century). *Compare* Corrasion.

Corrosive. Anything that corrodes especially a chemical agent, as an acid; anything that wears away or disintegrates. (Century)

Corrosive sublimate. Mercuric chloride, $HgCl_2$. Called also Bichloride of mercury. It is a virulent poison. (Webster)

Corrugated. When beds on a small scale are much wrinkled, folded or crumpled, they are said to be corrugated. On a larger scale they are said to be contorted. (Roy. Com.)

Corsite. A name applied by Zirkel to the orbicular or spheroidal diorite from Corsica; synonym for Napoleonite. (Kemp)

Cortada. 1. (Colom.) A straight cut made to connect two bends of a river in order to work the bed of the river as a placer at the intermediate bend. 2. (Chile) A cut or drift on a vein. 3. Any working driven to cut a vein; a crosscut. (Halse)

Cortador de leña (Sp.). A wood chopper (Halse). A synonym for Leñador.

Cortadores (Sp.). Wood cutters. (Min. Jour.)

Cortafrío (Mex.). Cold chisel. (Dwight)

Cortar (Sp.). 1. To cut. 2. *C. alturas*, to cut a trench at the outcrop of a deposit, and then deepen it by underhand stoping. 3. *C. pilar* (Mex.) To form a rock support or pillar in a mine. (Halse)
4. *C. sogas* (Mex.) Literally, to cut the ropes. To abandon a mine, taking everything useful or movable. (Dwight)
5. *C. el oro*, to separate gold from the foreign matter. (Lucas)

Corte (Sp.). 1. Edge of any cutting instrument. 2. Cut or opening in a mountain. 3. (Colom.) The working portion of a placer, or vein at the surface; a stope. (Halse)
4. (Peru) Opening to an ore-deposit, either a shaft or drift. 5. (Peru) Pay-streak left clear so that ore can be knocked down without becoming mixed with waste. 6. *C. de caja* (Mex.) Balance sheet of accounts. (Dwight)

Corteza (Mex.). Crust. (Dwight)

Cortlandtite. A special name given by G. H. Williams to a peridotite that consists chiefly of hornblende and olivine and that occurs in the so-called Cortlandt series of igneous rocks in the township of Cortlandt, just south of Peekskill, on the Hudson River. This rock had been previously called hudsonite by E. Cohen, a name rejected by Williams because already used for a variety of pyroxene. (Kemp)

Corundolite. Wadsworth's name for rocks composed of corundum or emery. (Kemp)

Corundum. 1. Aluminum oxide, Al_2O_3. The colored and the clear varieties form the gems,—sapphire, ruby, oriental emerald, and oriental topaz; the granular impure variety is known as emery. (U. S. Geol. Surv.) 2. The name of the mineral is sometimes prefixed to the names of rocks containing it; as corundum-syenite. (Kemp)

Corve. See Corf.

Corvers (No. of Eng.). Carpenters who make corves (baskets). Also formerly one who brought corves out of the mine, and kept them in repair. (Gresley)

Cosalite. A sulphide of lead and bismuth, $Pb_2Bi_2S_5$. Contains 42 per cent bismuth. (U. S. Geol. Surv.)

Cosecha (Chile). A clean-up at placer mines. (Halse)

Cosmic. Of or pertaining to the celestial universe, especially to that part of it outside the solar system. (La Forge)

Cosmites. A term used by M. E. Wadsworth to designate mineral decorative materials, ornamental stones, and gems. (Power)

Costado (Sp.). The side of a pit, gallery, or shaft. (Halse)

Costal (Mex.). An ore sack or bag made of the thread of the aloe. (Halse)

Costalera (Mex.). Ore-sacks (collectively). (Dwight)

Cost book (Corn.). A book used to keep accounts of mining enterprises carried on under the cost-book system, peculiar to Cornwall and Devon, and differing from both partnership and incorporation. It resembles the mining partnership system of the Pacific States. (Raymond)

Cost-book system (Eng.). The method of working a mine according to certain regulations, by which the adventurers may at any time "sign off", and cease to be liable for any further expenditures in proving the mine. The plan is to insert in the "cost book" the name of each shareholder, and all expenses attached to the undertaking; a meeting of the proprietors is held every two months, at which the purser presents his accounts, and the shareholders are thus enabled to judge of the state of the undertaking before incurring any further liabilities. (Whitney)

Costeable (Mex.). Sufficiently rich to pay expenses at least (said of ore, ground, stopes, etc.). (Dwight)

Costean (Corn.). 1. To dig trenches or small pits through the surface soil or débris to the underlying rock in places for the purpose of exposing the outcrop of a mineral deposit and determining its course. (Webster)
2. Fallen or dropped tin. From the Cornish, *Cothas*, dropped, and *Stean*, tin. (Hunt)

Costean-pit (Corn.). A pit sunk to bedrock in prospecting. (Standard)

Costearse (Mex.) To pay for itself. (Dwight)

Costo; Costa; Coste (Sp.). 1. Cost or price. *C. neto*, net cost. 2. Expense, working cost. *C. del beneficio*, cost of reduction. (Halse)
3. *C. de los journales*, the labor working cost. (Dwight)

Costra (Chile). 1. A conglomerate of clay, gravel, and feldspar immediately overlying *caliche*. 2. Scale, or portion of a lode or rock which breaks off in scales or flakes. (Halse)

Coteau (Fr.) A hill or ridge, which may be morainic; also, a high plateau. (Standard)

Cotense (Mex.). Miner's sash cloth, or breechclout. Coarse hempen cloth similar to burlap. (Dwight)

Coto (Sp.). 1. In surveying, a landmark of rough stone. 2. *C. minero*, a group of mines. (Halse)

Cotter (Eng.). To mat together; to entangle. Frequently applied to a hard, cross-grained, tough stone or coal, as cottered coal. (G. C. Greenwell)

Cotterite. A variety of quartz having a peculiar metallic pearly luster. (Standard)

Cotton ball. *See* Ulexite.

Cotton miner (Quebec). A miner employed in an asbestos mine.

Cotton rock. 1. (Missouri). A local name for a soft, fine-grained siliceous magnesian limestone of the Lower Silurian. (Century)

Cotton stone. 1. A variety of mesolite (Power). 2. *See* Cotton rock.

Cotunnite. A soft white to yellowish lead chloride, $PbCl_2$. Occurs in acicular crystals of the orthorhombic system and in se uicrystalline masses. (Dana)

Cougas (Mex.). A black mineral wax or oil. (Halse)

Coulch (Derb.). A piece of earth falling from the roof or side in soft workings. (Hooson)

Coulee. 1. A solidified stream or sheet of laya extending down a volcano, ofteu forming a ridge or spur. 2. A deep gulch or water channel; usually dry. (C. and M. M. P.)

Coulomb. The practical unit of quantity in electrical measurements; namely, the quantity of elc:tricity conveyed in one second by the current produced by an electro-motive force of one volt acting in a circuit having a resistance of one ohm. (Webster)

Counter. 1. A cross-vein. 2. (Or counter-gangway.) A gangway driven obliquely upwards on a coal seam from the main gangway until it cuts off the faces of the workings, and then continues parallel with the main gangway. The oblique portion is called Run. (Raymond)
3. An apparatus for recording the number of strokes made by a pump, engine, or other machinery.

Counterbalance; Counterpoise. A weight used to balance another weight or the vibrating parts of machinery. (Ihlseng)

Counter chute. A chute through which the coal from counter-gangway workings is lowered to the gangway below. (Chance)

Counter coal. Coal worked from breasts or bords to the rise of a counter gangway. (Gresley)

Counter gangway. A gangway driven obliquely across the workings to a higher level; or a gangway driven between two lifts and sending its coal down to the gangway below through a chute. (Chance)

Counterhead (Mid.). An underground heading driven parallel to another, and used as the return air course. (Gresley)

Counterlode. A smaller vein running across the main lode. (Skinner)

Counterpoise. *See* Counter-balance.

Countervein. A cross vein running at approximately right angles to the main ore body (Weed). *See also* Counterlode.

Country (Corn.). The rock traversed by or adjacent to an ore deposit. *See also* Country rock. (Raymond)

Country bank (Ark.). A small mine supplying coal for local use only. (Steel)

Country rock. The general mass of adjacent rock as distinguished from that of a dike, vein or lode. (Stevens *v.* Williams, 23 Federal Cas., p. 44)

Country sale (Scot.). Sale of coal at the mine; sale by cart, as distinguished from disposal by rail or sea. (Barrowman)

County of Durham system. A combination of the panel and room-and-pillar method of mining. *See also* Room-and-pillar method.

Coup. 1. (No. of Eng.). To exchange cavils (lots) with the consent of the foreman. (Gresley)
2. (Scot.) A bank, or face of a heap where débris is dumped. 3. To overturn. (Barrowman)

Couple. 1. A pair of equal forces, acting in opposite directions but not on the same point. They can not be balanced by any single force, and their tendency is to produce motion. (Webster)
2. (Mid.). To conduct water down the sides of shafts into water curbs or garlands. (Gresley)

Coupler (Eng.). A boy who couples or connects the cars of coal, ore or rock in order to form a trip or train.

Coupling. 1. A threaded sleeve used to connect two pipes (Nat. Tube Co.)
2. A device for joining two rope ends without splicing. (C. M. P.)
3. (York) An attachment for joining a chain to the end of a rope. (Gresley)
4. A link or chain for connecting mine cars.

Coupling chains (Scot.). Short chains conecting the cage with the winding rope (Barrowman). *See* Bridle chains.

Coupling tongs (Scot.). A tool used in joining flanged pipes. (Barrowman)

Coup-over (Aust.). **Coup-up** (Scot.). A small chamber, into which an empty skip can be upset so as to allow a full skip to pass when there is only a single line. (Power)

Course. 1. To conduct the ventilation backward and forward through the workings, by means of properly arranged stoppings and regulators.

2. (Som.) A seam of coal. (Gresley)
3. The horizontal direction or strike of a lode, vein, etc. 4. Progress from point to point without change of direction. 5. A continuous layer of brick masonry, cement or concrete. (Webster)
6. An influx of water from one direction. (Standard)

Coursed rubble. Rubble in courses of differing breadths. (Standard)

Course of ore. *See* Chute, 2; *also* Course, 3.

Course of vein. Its strike. The horizontal line on which it cuts the country rock. (Duryee)

Coursing. Ventilation in mines, as by doors, brattices and stoppings. (Standard)

Coursing the air. *See* Course, 1.

Coursing the waste. *See* Course, 1.

Courtzilite. A form of asphaltum allied to gilsonite. (Bacon)

Cousie (pronounced **Cowssie**) (Scot.). A self-acting plane. (Barrowman)

Cousie wheel (Scot.). The drum or pulley on a self-acting plane. (Barrowman)

Cousin Jack. A common nickname for a Cornishman. (Raymond)

Covacha (Mex.). A cave or crevice. (Dwight)

Covellite. An indigo-blue copper sulphide, CuS. Contains 66.4 per cent copper. (U. S. Geol. Surv.)

Cover. 1. (No. of Eng.) The total thickness of strata overlying the mine workings (Gresley). Overburden.

Cover binding (Corn.). *See also* Plank timbering.

Covering bords (York). A series of bords (rooms) formed on the side of a shaft pillar, from which long-wall working is commenced. (Gresley)

Cover work. Lumps of copper too large to pass the screen and which accumulate in the bottom of the mortar of a stamp. (Richards, p. 121).

Covite. A name derived from Magnet Cove, Ark., and suggested by H. S. Washington for a leucocratic, holocrystalline combination of orthoclase (alkali-feldspar) and less nephelite, with hornblende and aegirite-augite, and of granitic structure. The rock was previously described as a "fine-grained syenite," by J. F. Williams. (Kemp)

Cow. A kind of self-acting brake for inclined planes; a trailer. (Raymond). *Compare* Cousie.

Cowl (No. of Eng.). A wrought-iron water barrel, or tank for hoisting water. (Gresley)

Cowp (Newc.). 1. To overturn. To exchange working places. *See also* Coup. (Min. Jour.)

Cowper-Siemens stove. A hot-blast stove of firebrick on the regenerative principle. (Raymond)

Cow stone (Eng.). A local term for green-sand bowlders. (Roberts)

Cow sucker. A heavy piece of iron attached to the end of the drilling cable in order to facilitate the descent of the latter when the tools are disconnected. (Mitzakis)

Coyote (Mex.). A man who buys and sells mining shares. (Dwight)

Coyote hole. Same as gopher hole. A small tunnel driven horizontally into the rock at right angles to the face of the quarry. It has two or more cross-cuts driven from it parallel to the face. It is in the ends of these cross-cuts that the explosive charge is generally placed, and the remaining space in the tunnel is filled up with rock, sand, timbers, or concrete, to act as stemming or tamping. (Du Pont)

Coyoting (Pac.). Mining in irregular openings or burrows, comparable to the holes of coyotes or prairie foxes (Raymond). Gophering.

Coz. 1. (Mex.). A hitch for a stull. (Dwight)
2. (Colom.) The pointed end of a leg piece or post. (Halse)

Crab. 1. A machine for moving heavy weights. Especially the engines employed for lowering into place the pumps, rods, pipes, etc., of Cornish pit-work. *See also* Crab-winch. (Raymond)
2. An iron rod forked at one end, attached to loaded coal cars coming up out of a slope. (Roy)
3. A hoisting winch used to pull ladles, cars, or iron plate in boiler shop; also called Mule or Car dumper. (Willcox)

Crab hole (Aust.). 1. Holes, apparently water-worn, found in the bedrock under the drift. (Davies)
2. The hole burrowed by the Australian land crab, or crawfish; also the hollow form by caving in of one of these burrows. (Webster)

Crab winch. An iron machine consisting of two triangular uprights between which are two axles, one above the other. These machines are frequently used in connection with pumping gear where mine shafts are not deep. *See also* Crab, 1. (Duryee)

Cracker. A coal breaker. (Daddow)

Cracker boss. The officer in charge of the screen room in a breaker. (Greene)

Cracket (No. of Eng.). A tool used by miners in mining coal. (Gresley)

Cracking of oil. A name given to the method by which hydrocarbons of one composition are reduced to lower members of the same series, or converted into other hydrocarbons during distillation (Mitzakis). It originated about 50 years ago by the stillmen in the old Pennsylvania refineries and means just what its connotation conveys, namely a part alteration, as distinguished from the more complete decomposition which would disrupt the molecule largely into carbon and permanent gas. Cracking simply alters the molecules to an extent that produces an amount of low-boiling fractions that can not be obtained by simple distillation. It may not be accomplished by any considerable production of permanent gas, the product being largely a liquid condensate, but of different character from that obtained by simple distillation. (Min. and Sci. Press, May 1, 1915)

Crackle ware. Pottery or porcelain covered with a delicate network of cracks produced in the glaze. (Standard)

Cracks (Scot.). Vertical planes of cleavage in coal. Planes at right angles to the bedding. (Gresley)

Cracks of gas. Puffs or explosions of gas in blast furnaces. (Willcox)

Cradle. 1. (Eng.) A movable platform or scaffold suspended by a rope from the surface, upon which repairs or other work is performed in a shaft. 2. (Mid.). A loop made of a chain in which a man is lowered and raised in a shaft not fitted with a cage. (Gresley)
3. A wooden box longer than wide, provided with a movable slide and hopper, and mounted on two rockers. It is used for washing gold-bearing earths (Roy. Com.). *See also* Rocker.
4. To wash gold-bearing material in a cradle. (Webster)
5. The part of a car dumper in which the car rests when it is dumped. (Willcox)

Cradle dump. A tipple which dumps cars with a rocking motion. (Harr)

Cradling (Scot.). Stone walling in a mine shaft. (Barrowman)

Crag. 1. A fossiliferous sandy marl of marine origin; generally used, capitalized, as part of the names of several formations of Pliocene age in eastern England. (La Forge)
2. A steep, rugged rock; a rough broken cliff or projecting point of rock. 3. A detached fragment of rock. (Webster)

Crampet (Eng.). A bracket (Bainbridge). *See also* Cramp, 3.

Cramp. 1. A short bar of metal having its two ends bent downwards at right angles for insertion into two adjoining pieces of stone, wood, etc., to hold them together. (Duryee)
2. A pillar of rock or mineral left for support. (Weed)
3. (Derb.). A fastening used to keep pumps in place (Hooson). *See also* Clamp, 1.

Crampon. A form of hooked clutch or dog for raising stones, lumber, ice, etc.; grappling irons. (Webster)

Cranch (Derb.). A pillar of ore left to support the roof or hanging wall (Hooson). *See also* Cramp, 2.

Crandall. A mason's tool for dressing stone. (Century)

Crane. A kind of machine for raising and lowering heavy weights, and while holding them suspended, transporting them through a limited lateral distance. (Webster)

Crane board (No. of Eng.). A return air course connected directly with the furnace. (Gresley)

Crane brae (Scot.). A short incline in steep workings. (Barrowman)

Crane ladle. A pot or ladle, supported by a chain from a crane, used for pouring molten metals into molds. (Century)

Crane man. 1. (Eng.) One whose business it is to hoist coal with the crane. (G. C. Greenwell)
2. A man who operates any type of a crane.

Crane post. The upright post on which the arm or jib of a crane works. (Century)

Crank (Wales). Small coal. (Gresley)

Cranny. Any small opening, fissure, or crevice, as in a wall or rock. (Duryee)

Crate dam. A dam built of crates filled with stone. (Duryee)

Crater. The basin-like or funnel-shaped opening which marks the vent of a volcano; also the mouth of a geyser. (Webster)

Craw-coal. *See* Crow-coal.

Craw picker (Scot.). One who picks stones from coal or shale. (Barrowman)

Craza (Mex.). A vessel to receive molten metal. (Dwight)

Craze; Creaze (Corn.). The tin ore which collects in the middle part of the buddle; middlings. (Raymond)

Cream. A rusty impure meerschaum. (Power)

Crease. 1. (Forest of Dean) Mountain limestone workings. (Gresley)
2. An old stream channel. (Lahee, p. 282)

Creaze (Corn.). Middlings. *See* Craze.

Creek. 1. In maritime districts, a small tidal inlet. 2. In inland districts, a small stream or branch of a river; a brook. (La Forge)

Creek claim. A claim which includes the bed of a creek (Duryee). Under the statute of Oregon, a tract of land one hundred yards square, one side of which abuts on a creek or rather extends to the middle of the stream. (Chapman *v.* Toy Long, 4 Sawyer, p. 32; 5 Federal Cas., p. 497)

Creek placers. Placers in, adjacent to, and at the level of small streams. (U. S. Geol. Surv., Bull. 259, p. 33)

Creek right. The privilege of diverting water for the purpose of working a creek claim. (Duryee)

Creel (Scot.). A kind of basket in which coal and rock are conveyed from the mine. (Gresley)

Creep. 1. (Eng.) A squeeze or crush forcing the pillars down into the floor which often gives the miner the impression that the floor is rising, due to its being softer than the roof. Any slow movement of mining ground. Also called Squeeze; Pull. *Compare* Thrust.
2. A gradual movement of loose rock material such as clay, due to alternate freezing and thawing, wetting and drying, or other causes.
3. To rise above the surface of a solution upon the walls of a vessel in which the solution is contained as salt crystals in a voltaic cell. (Webster)
4. A very slow movement of a winding engine, when the brake is not sufficiently applied to hold it. (Gresley)

Creeper chain (Aust.). A strong endless chain, in which every few feet a horn is inserted, which catches the axle of a skip and draws it up an incline. (Power)

Creeping. (Eng.). The settling, or natural subsidence, of the surface, caused by extensive underground workings. (Gresley)

Creeshy bleas. (Scot.). Nodules of bituminous shale in the soft roof of some of the Scotch collieries. So called from the sort of unctuous smoothness, which causes them to fall out when the coal is removed. Also called Greasy bleas. (Gresley)

Creminel (Brit. Guiana). A shovel used by the natives for removing the overburden of placer mines. (Halse)

Crenitic. A word derived from the Greek for spring, and especially used by T. S. Hunt for those rocks, which were thought by him to have come to the surface in solution and to have been precipitated. He used the so-called 'crenitic hypothesis' to explain certain schists whose feldspars were supposed to have been originally zeolites, but his views have received slight, if any, support. Crenitic is also used by W. O. Crosby to describe those mineral veins which have been deposited by uprising springs. (Kemp)

Creosote. 1. An oily antiseptic liquid obtained by the distillation of wood tar. Also a similar substance obtained from coal tar. 2. To saturate or impregnate with creosote, as timber to prevent decay. (Webster)

Crept bord (Eng.). A bord or room more or less filled up from the effects of creep. (Gresley)

Crept pillars (Eng.). Pillars of coal which have passed through the various stages of creep. (G. C. Greenwell)

Cressed. Reduced about $\frac{1}{8}$ inch in diameter for a short distance at ends. A foreign term, used on artesian well casing. (Nat. Tube Co.)

Cresset (Eng.). A sort of lamp or torch; an iron basket or vessel for holding burning oil or other illuminant and mounted as a torch. (Webster)

Cresting. Trimming used on the ridge of tiled roofs. Same as Hip roll. (Ries.)

Crestón (Sp.). The outcrop or apex of a vein. (Dwight)

Creta. 1. (Sp.). Fuller's earth. *See* Greda, 1. 2. (Mex.). Impure litharge formed in a reverberatory furnace. (Halse)

Cretaceous. 1. Of the nature of chalk; relating to chalk. (Hitchcock)
2. The third and latest of the periods included in the Mesozoic era; also the system of strata deposited in the Cretaceous period. (La Forge)

Cretacio (Sp.). Cretaceous. (Dwight)

Crevasse. 1. A fissure in the mass of a glacier. 2. A breach in the levee or embankment of a river. (Webster)

Crevet. A crucible. (Raymond)

Crevice (Pac.). 1. A shallow fissure in the bedrock under a gold placer, in which small but highly concentrated deposits of gold are found. 2. The fissure containing a vein. (Raymond). As employed in the Colorado statute relative to a discovery shaft, a crevice is a mineral-bearing vein. (Bryan *v.* McCaig, 10 Colorado, 309; 15 Pacific, p. 413; Beals *v.* Cone, 27 Colorado, 500; 15 Pacific, p. 948; Terrible Mining Co. *v.* Argentine Mining Co., 89 Federal, 583)

Crevicing. Collecting gold that is in the crevices of a rock. (Skinner)

Criadero (Sp.). 1. An ore or mineral deposit. *C. detrítico*, alluvium; *C. en arbol*, ramification; *C. en filón*, a vein deposit of considerable extension; *C. en veta*, a vein deposit of variable but not great dimensions; *C. en capa*, a stratified deposit; *C. en riñones*, small irregular deposits. (Halse)
2. (Mex.) Any mineral deposit. This is the more modern sense, and the word is so used in the mining laws at present (1902) in force in Mexico. (Dwight)

Crib. 1. *See* Curb, 1, Nog, Chock, Pack. 2. A structure composed of frames of timber laid horizontally upon one another, or of timbers built up as in the walls of a log cabin. 3. A miner's luncheon. (Raymond)
4. (Eng.) A cast-iron ring in a shaft upon which tubbing is built up. *See* Wedging curb. 5. (Eng.) A wooden foundation upon which the brick lining or walling of a shaft is built. (Gresley)

Criba (Mex.). 1. Screen or sieve; *C. giratoria*, revolving screen or trommel. *See also* Cedazo. 2. A hand-jig. *See also* Harnero. (Dwight)

Cribado (Sp.). Jigging or screening ore. (Lucas)

Cribador (Mex.). An ore screener. (Dwight)

Cribar (Sp.). To screen, jig, or sift. (Halse)

Cribbing. 1. Close timbering, as the lining of a shaft. (Rowden *v.* Daniel, 151 Missouri App., p. 22)
2. The construction of cribs of timber, or of timber and earth or rock to support the roof. (Steel)

Cribble. A sieve. (Raymond)

Cribwork. A construction of timbering made by piling logs or beams horizontally one above another, and spiking or chaining them together, each layer being at right angles to those above and below it (Century). *See also* Crib, 2.

Crichtonite. A variety of ilmenite in which the proportion of titanic oxide is less than normal. (Standard)

Crilley and Everson process. A flotation process in which the ore is crushed to 50 mesh, and mixed with a thick black oil. Boiling water containing enough acid to give it a tart taste is then added. This process was tried at Baker City, Oreg., and at Denver, Colo., in 1889. (Liddell)

Crimp. The flattening made by a crimper near the mouth of a blasting cap for holding the fuse in place. (Du Pont)

Crimper. A device used for crimping a cap about a piece of fuse. (Gillette, p. 443)

Cripple. 1. Swampy or low wet ground; bog. 2. A rocky, shallow place in a stream. (Webster)

Crisócola (Sp.). 1. Chrysocolla. 2. Gold solder. 3. Borax. (Halse)

Crisol (Mex.). An assay crucible; melting pot; slag pot. (Dwight)

Crisolada (Sp.). 1. A crucible full of molten metal. 2. A crucible charge. (Halse)

Crisolero (Mex.). A slag-pot puller. (Dwight)

Cristal (Sp.). A crystal; *C. de roca*, rock crystal. (Halse)

Cristalino (Sp.). Crystalline. (Dwight)

Cristo-grahamite. Grahamite from the Cristo mine, Huasteca, Mexico. (Bacon)

Critical angle. The least angle of incidence at which total reflection takes place. (Webster)

Critical density. The density of a substance at its critical point. (Webster)

Critical pressure. The pressure necessary to raise the boiling point of a substance, in the liquid state, to the critical temperature; the pressure that will just liquefy gas at its critical temperature. (Webster)

Critical temperature. Any temperature marked by a transition; the temperature above which a substance can exist only in the gaseous state, no matter what the pressure. (Webster)

Crocidolite. Blue asbestos. One of the monoclinic amphiboles. (Dana)

Crocoite. Lead chromate, $PbO.CrO_3$. Contains 68.9 per cent PbO and 31.1 per cent CrO_3. (U. S. Geol. Surv.)

Crocus. A term used in the Milford, N. H., quarries to denote gneiss or any other rock in contact with granite. (Perkins)

Cromo (Sp.). Chromium. (Dwight)

Cronstedite. A coal-black to brownish-black hydrous iron silicate, $4FeO.2Fe_2O_3.3SiO_2 4H_2O$. (Dana)

Crookesite. A massive, compact metallic, lead-gray selenide of copper, thallium and silver, $(Cu,Tl,Ag)_2Se$. (Dana)

Crop. 1. *See* Outcrop; *also* Bassett. 2. The roof coal or stone which has to be taken down in order to secure a safe roof in the workings. (Gresley)
3. (Corn.) *See* Crop-tin. 4. To leave coal at the bottom of a bed. (Raymond). *See* Cropping coal.
5. (Eng.) To dock or fine by deducting a certain portion of the weight of coal in the car when there is an excess of refuse, or the like. (Webster)

Crop coal. Coal of inferior quality near the surface. (Roy. Com.)

Crop fall. A caving in of the surface at the outcrop of the bed caused by mining operations. Applied also to falls occurring at points not on the outcrop of the bed. Synonomous with Day fall. (Chance)

Crop ore (Local Eng.). First-quality tin ore, cleaned for smelting. (Standard)

Crop out. To be exposed at the surface; referring to strata (Whitney). *See also* Outcrop.

Cropper (Eng.). A shot placed at the highest side or edge of a shaft bottom. (Gresley)

Cropping. An outcrop. (Standard)

Cropping coal. The leaving of a small thickness of coal at the bottom of the seam in a working place, usually in back water. The coal so left is termed "Cropper coal." (C. and M. M. P.)

Cropping out. The natural exposure of bedrock at the surface. That part of a vein which appears at the surface is called the cropping or outcrop. (Raymond)

Croppings. Portions of a vein as seen exposed at the surface. (C. and M. M. P.)

Crop tin. The chief portion of tin ore separated from waste in the principal dressing operation. (Raymond)

Crop upwards (Eng.). In miners' parlance, to rise. (Roberts)

Croquis (Sp.). A sketch; a rough draft. (Halse)

Cross (Wales). *See* Crosscut.

Crossbar. A horizontal timber held against the roof to support it, usually over a roadway; a collar. (Steel)

Cross-bedded. Characterized by minor beds or laminæ oblique to the main stratification; cross-stratified. (Webster)

Cross-bedding. Lamination, in sedimentary rocks, confined to single beds and inclined to the general stratification (La Forge). Caused by swift, local currents, deltas, or swirling wind-gusts, and especially characteristic of sandstones, both aqueous and eolian. (Kemp)

Cross course. A seam, bar or belt of rock, not necessarily a lode, crossing a lode (Webster). A contra-lode.

Cross-course spar (Corn.). Radiated quartz. (Whitney)

Crosscut. 1. A small passageway driven at right angles to the main entry to connect it with a parallel entry or air course. Also used in Arkansas instead of "breakthrough." (Steel)
2. A level, driven across the course of a vein or in general across the direction of the main workings or across the "grain of coal." (Raymond)

Crosscut method (combined with removal of pillars). *See* Top slicing and cover caving.

Crosscut method of working. *See* Overhand stoping.

Crosscut tunnel. A tunnel driven at approximately right angles to a main tunnel, or from the bottom of a shaft or other opening, across the formation to an objective point (Duryee). The term "crosscut" would seem more appropriate as the term tunnel implies being open to the surface at both ends, as a railroad tunnel.

Crossed dispersion. In optical mineralogy, the dispersion that produces an interference figure with color distribution symmetrical to the center of the figure. (A. F. Rogers)

Crossed nicols. Two nicol prisms placed so that their vibration planes are mutually at right angles. (Luquer, p. 26)

Crossed twinning. Repeated twinning after two laws. Shown in microcline. (Luquer, p. 37)

Cross entry. An entry running at an angle with the main entry. (Roy)

Crosses and holes (Derb.). In Derbyshire the discoverer of a lode secures it temporarily by making "crosses and holes" in the ground. (Davies)

Cross fault. An oblique or dip fault. (Webster)

Cross flucan. A name given by Cornish miners to clay veins of ancient formation (Ure). *See also* Flucan.

Cross frog. A frog adapted for railroad tracks that cross at right angles. (Webster)

Cross gates (York). Short headings driven on the strike and at right angles to the main gates or roads. (Gresley)

Cross gateway (Aust.). A road, through the goaf, that branches from the main gateway. (Power)

Cross-grained rock (Ohio). A local term for certain sandstone beds that exhibit cross bedding. (Bowles)

Crosshead. 1. A runner or framework that runs on guides, placed a few feet above the sinking bucket in order to prevent it from swinging too violently. (Power)
2. A beam or rod stretching across the top of something; specifically, the bar at the end of a piston rod of a steam engine, which slides on the ways or guides fixed to the engine frame and connects the piston rod with the connecting rod. (Century)

Cross-head guide. A guide for making the crosshead of an engine move in a line parallel with the cylinder axis. (Standard)

Cross heading. A passage driven for ventilation from the airway to the gangway, or from one breast through the pillar to the adjoining working (Chance). Also called Cross hole, Cross gateway, and Headway.

Cross hole (Wales). A short cut-through communicating with two headings, for ventilation purposes. (Gresley)

Crossing. 1. The place where two or more lines of rails extending in different directions cross each other. (Power)
2. (Eng.) *See* Air crossing. 3. (Wales) A crosscut. (Gresley)

Crossite. A blue amphibole found in the crystalline schists of California. (Standard)

Cross latches. *See* Latches, 1.

Cross lode. A vein intersecting the true or principal lode (Webster). *See* Cross-vein.

Cross-measure. A heading driven horizontally or nearly so, through or across inclined strata. (Gresley)

Cross-off (Clev.). *See* Stack out.

Crossover. A short connecting track with a switch and frog at each end, by which trains, (or cars) may be switched from either of two tracks to the other. (Webster)

Crosspiece. The short pieces of timber in a wooden pillar or crib. *See* Edgers. (Sanders, p. 115)

Crossroad (Scot.). A main road driven at a more moderate inclination than directly to the rise of the strata. (Barrowman)

Cross section. A cutting or section across; a section at right angles to an axis, especially the longer axis of anything; also a piece of something cut off in a direction at right angles to an axis. (Webster)

Cross-spur. A vein of quartz that crosses a lode. (C. and M. M. P.)

Cross-stone. A synonym for Andalusite. (Chester)

Cross stoping. *See* Overhand stoping.

Cross-stratification. In geology, the condition of having the minor laminations oblique to the plane of the main stratum which they help to compose. (Standard). *See also* Cross-bedding.

Crosstie. A timber or metal sill placed transversely under the rails of a railroad, tramway or mine-car track.

Cross vein. 1. An intersecting vein (Raymond). *See* Cross lode.
2. A vein which crosses the bedding planes of the strata. This usage appears unnecessary, and conflicts with the same name applied to cases where two veins actually cross each other. (Shamel, p. 165)

Crouan (Corn.). Granite. (C. and M. M. P.) *See also* Grouan.

Crouch clay (Eng.). An old name for the white Derbyshire clay. (Century)

Crouch ware. 1. (Staff.) A kind of fine pottery made in the seventeenth century. 2. A salt-glazed stoneware made at Burslem, England. (Century)

Crow-coal. Certain earthy coal which contains very little bitumen and a large percentage of ash (Power). Also called Craw-coal, and Craws.

Crowfoot; Crow. 1. A tool with a side-claw, for grasping and recovering broken rods in deep bore-holes. (Raymond)
2. An iron claw or fork, to which a rope is attached, and by which the rods are lowered and raised when changing the tools in deep bore holes. (Gresley)
3. (Tenn.) Zigzag, wavy or irregular, dark lines characteristic of Tennessee marble. (Bowles)

Crown arch. The arched plate which supports the crown-sheet of the fire box of a boiler. (Century)

Crown bar. One of the bars on which the crown-sheet of a locomotive rests. (Century)

Crown formation (Aust.). A term used in Bendigo for the outcrop of saddle reefs crowning the hills, from which points the reefs dip in opposite directions. (Power)

Crown-gate. The head gate of a canal lock. (Century)

Crown gold. Gold eleven-twelfths (.917) fine, the standard for English gold coins since Charles II. (Webster)

Crown-in (Ches.). The caving of the surface or cover of a rock-salt mine. (Gresley)

Crownings-in (So. Staff.). The strata forming the roof or cover. (Gresley)

Crown sheet. The flat plate which forms the top of the furnace or fire box in an internally fired steam boiler. (Webster)

Crownstone. 1. No. of Eng.) The top stone of the gable-end of a house.
2. A hard, smooth, flinty gritstone (Century). *See also* Ganister. 3.

Crown tree; Crown. A piece of timber set on props to support the mine roof. (C. and M. M. P.)

Crown wheel. A cog-wheel having the teeth on the plane of the wheel's circle instead of upon its circumference. (Duryee)

Croylstone. A variety of finely crystallized barite. (Standard)

Crozle; Crozzle. To cake or harden with heat; to burn to a cinder. A cinder (Webster). Said of coal.

Crucero (Sp.). 1. Crosscut. 2. A cross course; a cross-vein. 3. End pieces of a set of shaft timbers. (Halse)

Cruceros. 1. (Chile) Minute veins, oblique to the lode, in both direction and dip, being the largest and richest at the junction. 2. (Spain) The two cross beams of the pulley frame of a *malacate*. (Halse)

Cruces (Sp.) The crosspieces of an arrastre or grinding mill. (Min. Jour.)

Crucible. 1, A melting pot. 2. The lower part of a shaft furnace, in which fusion is effected and the molten bath is contained. (Raymond)

Crucible steel. Also crucible cast steel. A superior but expensive kind of cast steel made by either melting blister steel in crucibles, or by fusing together wrought iron, carbon and flux in crucibles. (Webster)

Crucite. Same as Andalusite. (Standard)

Crude. 1. In a natural state; not altered, refined or prepared for use by any process, as crude ore. (Webster)
2. A name for crude petroleum. (Bacon)

Crude oil. A name for crude petroleum. (Bacon)

Crude mineral-oil. A name for crude petroleum. (Bacon)

Crude naphtha. Unrefined petroleum-naphtha. (Standard)

Crude ore-bin. An ore bin of crude construction. (Rickard)

Crude-ore bin. A bin in which ore is dumped it comes from the mine. (Rickard)

Crup. A gradual settling of the measures overlying a mine caused by the weight crushing the pillars, or forcing them down into the floor (Harr). A variation of creep.

Crusader. A wooden sailing ship of 643 tons register. One of the first sailing vessels to be converted into oil carriers in 1885. The Crusader was fitted with 47 independent tanks, arranged in three superimposed tiers, an arrangement which was found to work satisfactorily. (Mitzakis)

Crush. 1. A general settlement of the strata above a coal mine due to failure of pillars; generally accompanied by numerous local falls of roof in mine workings. 2. A species of fault in coal. (Century)

Crush-border. A microscopic granular structure sometimes characterizing adjacent feldspar particles in consequence of their having been crushed together during or subsequent to their crystallization. (Dale)

Crush breccia. A breccia produced by the shattering of rocks along a fault. (Century)

Crushed steel. Angular fragments of hard steel employed as an abrasive in sawing stone. (Bowles)

Crushed vein. A mineralized zone or belt of crushed material. The crushing is due to folding, faulting, or shearing.

Crusher. A machine for crushing rock or other materials (Webster). As a gyratory crusher, jaw crusher, stamp mill, etc.

Crusher rolls. *See* Rolls.

Crush-conglomerate. A conglomerate produced by the crushing of certain rocks in the shearing movements following folding. (Standard)

Crushing. 1. Reducing ore or quartz by stamps, crushers, or rolls. (Roy. Com.)
2. The quantity of ore so pulverized or crushed at a single operation. (Hanks)
3. (Aust.) The equivalent of "mill-run." (Power)

Crushing machine. A machine constructed to pulverize or crush stone and other hard and brittle materials; a stone crusher. (Century)

Crushing mill. The same as Stamp mill (Winchell). *See* Crusher.

Crushing rolls. A machine consisting of two heavy rolls between which ore, coal or other mineral is crushed. Sometimes the rolls are toothed or ribbed, but for ore their surface is generally smooth. (Century)

Crushing strength. The resistance which a rock offers to vertical pressure placed upon it. It is measured by applying graduated pressure to a cube, one inch square, of the rock tested. A crushing strength of 4,000 pounds means that a cubic inch of the rock withstands pressure to 4.000 pounds before crushing (Lowe). The crushing strength is greater with shorter prisms, and less with longer prisms.

Crush line. In geology, a line along which rocks, under great compression, yield, usually with the production of schistosity. (Century)

Crush movement. In geology, compression, thrust, or lateral movement tending to develop shattered zones. (Century)

Crush plane. In geology, a plane defining zones of shattering which result from lateral thrust. (Century)

Crush zone. In geology, a zone of faulting and brecciation in rocks. (Century)

Crust. 1. The hard external covering of anything. An incrustation. (Webster)
2. The lithosphere, or solid exterior portion of the earth, whose nature is partly known from geologic examination, or highly probable deduction; contrasted with the enveloping hydrosphere and atmosphere and with the unknown centrosphere or barysphere, whose nature is conjectural. (La Forge)
3. (Shrop.) A fine-grained white sandstone. (Gresley)

Crust fracture. An extended fracture in the earth's crust. (Century)

Crustification. The English equivalent of a term suggested by Posepny for those deposits of minerals and ores that are in layers or crusts and that, therefore, have been distinctively deposited from solution. (Kemp)

Crust movement. An extensive movement of the earth's crust. (Century)

Crust-stress. Local strains and pressure within the rocks of the earth's crust. (Century)

Crust-torsion. A twisting stress in the earth's crust. (Century)

Crutt (No. Staff.). *See* Branch, 1 and 2.

Cruz (Sp.). 1. Cross. 2. Intersection of two ways. 3. Arms of a scale. (Dwight)
4. A wall which divides the bed of Spanish reverberatory furnaces. (Halse)

Cruzada (Colom.). A crosscut. (Halse)

Cruzado (Sp.). A lode or vein which is crossed by another. *See also* Cruzador. (Halse)

Cruzador (Colom.). 1. A cross vein or lode. 2. A vein crossed by another. (Halse)

Cruzamiento (Sp.). 1. A crossing of underground roads. 2. A crossing of air currents; an overcast. 3. The crossing of two veins. (Halse)

Cry of tin. The peculiar crackling noise produced in bending a piece of metallic tin. (Raymond)

Cryolite. A fluoride of sodium and aluminum, $3NaF.AlF_3$. (U. S. Geol. Surv.)

Cryolite glass. A semi-transparent or milky-white glass, made of silica and cryolite with oxide of zinc, melted together. Also called Milk glass and Fusible porcelain. (Century)

Cryptoclastic. Compact. Made of extremely minute fragmental particles. (Webster)

Cryptocrystalline. Formed of crystals of unresolvable fineness, but not glassy. (Kemp)

Cryptographic. In petrology, having a graphic structure of intergrowths so minute that it can not be resolved by a microscope. (Standard)

Cryptohalite. A gray ammonium fluosilicate $(NH_4)_2.SiF_6$, that crystallizes in the isometric system. (Standard)

Cryptoperthite. A variety of perthite with structure so fine that it can not be discerned by the microscope. (Standard)

Crys ground (Forest of Dean). Carboniferous limestone strata containing beds of iron ore. (Gresley)

Crystal. A regular polyhedral form, bounded by planes, which is assumed by a chemical element or compound, under the action of its intermolecular forces, when passing, under suitable conditions, from the state of a liquid or gas to that of a solid. A crystal is characterized, first, by its definite internal molecular structure, and, second, by its external form. (Dana)

Crystallized tin plate. Tin plate having crystals formed by the action of diluted nitric and hydrochloric acids (Standard). A rather low grade of tin plate. *See* Tin plate.

Crystalliform. Having a crystalline form. (Standard)

Crystalline. Of or pertaining to the nature of a crystal, having regular molecular structure. (Webster)

Crystalline aggregate. An aggregate of crystalline grains or fragments, as granite not showing well-defined crystal forms. (Webster)

Crystalline limestone. Limestone composed largely or wholly of crystallized material, commonly as the result of metamorphism. (La Forge)

Crystalline rock. A rock composed of closely fitting mineral crystals that have formed in the rock substance, as contrasted with one made up of cemented grains of sand or other material or with a volcanic glass. (Standard)

Crystalline schists. Rocks that have been entirely or partly recrystallized by metamorphism. They are named after their predominating mineral, as chlorite-schist, hornblende-schist, mica-schist, etc. (Standard)

Crystallinic metamorphism. A molecular change which renders an amorphous mineral body crystalline; as limestone to marble. (Sloan)

Crystallites. Small, rudimentary or embryonic crystals, not referable to a definite species. (Kemp)

Crystallitic. In petrology, of the nature of or belonging to the class of crystallites. (Standard)

Crystallization. The act or process of crystallizing. A form or body resulting from this act or process. *See* Crystallization systems. (Webster)

Crystallization systems. The thirty-two possible crystalline groups, distinguished from one another by their symmetry, are classified under six systems, each characterized by the relative lengths and inclinations of the assumed crystallographic axes. These are: (1) Isometric; (2) Tetragonal; (3) Hexagonal; (4) Orthorhombic; (5) Monoclinic; (6) Triclinic. (Dana)

Crystallize. To convert into a crystal; to deposit crystals (Webster). To solidify, from a liquid or gaseous state, in a crystalline form, with a regular molecular structure. (La Forge)

Crystalloblastic. A structure in schists due to relative perfection of crystal forms and arrangement. (Leith, p. 77)

Crystallogeny. The science and theory of the production of crystals. (Standard)

Crystallography. The science of crystals treating of the system of forms among crystals, their structure, and their forms of aggregation. A discourse or treatise on crystallization. (Webster)

Crystalloid. A substance which, in solution, diffuses readily through animal membranes, lowers the freezing point of the solvent, and generally is capable of being crystallized. Opposed to colloid (Webster). Metallic salts, sugar, oxalic acid are crystalloids.

Crystallology. The science of the structure of crystals. It embraces crystallography and crystallogeny. (Standard)

Crystallurgy. The process of crystallization. (Century)

Crystal optics. The science which treats of the transmission of light in crystals. (A. F. Rogers)

Crystolon. A trade name for carbide of silicon. (Pike)

Cuadrilla (Mex.). 1. A settlement. *Compare* Pueblo. (Lucas)
2. A gang or crew of laborers. (Halse)

Cuadro (Sp.). 1. A square set for stopes. 2. A block of ground ready for stoping. 3. (Colom.) A bunton, also a timber 5 to 20 in. square. (Halse)

Cuajado (Mex.). 1. Argentiferous carbonate of lead. 2. Coarse galena. (Halse)

Cuarcita (Mex.). Quartzite. (Dwight)

Cuarteador (Colom.). The miner who works *cuarteo*, 3. (Halse)

Cuarteadura (Mex.). A fissure in rocks. (Halse)

Cuartear (Sp.). To break large stones with a sledge hammer. (Halse)

Cuartel (Colom.). 1. Barracks for miners. 2. An underground section, district or group of workings. (Halse)

Cuarteo (Colom.). 1. A transitory suspension of the rains in winter. 2. A night shift of peons. 3. A system of working mines by which the ore is bought of the miners by the company, the miners providing the supplies. (Halse)
4. (Mex.) Work on drill holes, paid for by the foot, yard, meter, etc. (Dwight)

Cuarto. 1. (Mex.) A shift; *C. primero*, day-shift; *C. segundo*, afternoon-shift; *C. tercero*, night-shift. (Dwight)
2. (Sp.) A room in a mine for keeping tools, lights, etc. 3. (Mex.) *Minero de C.*, an underground mine captain. 4. (Colom.) Overtime. (Halse)

Cuartón (Mex.). A large bowlder. (Dwight)

Cuarzo (Sp.). Quartz; *C. ahumado*, smoky quartz; *C. furuginoso*, ferruginous quartz; *C. lechoso*, milky quartz; *C. porfidico*, (Peru) hornstone; *C. Rosado*, rose quartz. (Halse)

Cuaternario (Sp.). Quaternary. (Dwight)

Cuba (Sp.) 1. A keeve, vat. 2. A kibble. 3. An amalgamation barrel. 4. Shaft, fire room, or tunnel of a blast or shaft furnace. 5. The fire room of a coke oven. (Halse)

Cubanite (Cuba). A bronze-yellow sulphide of copper and iron mineral, perhaps $CuFe_2S_4$ or $CuS.Fe_2S_3$. (Dana)

Cubbling. Breaking up pieces of flat iron to be piled or fagoted, heated and rolled. (Raymond)

Cube. 1. In crystallography, a form, in the isometric system, inclosed by six similar faces each of which is perpendicular to an axis. (La Forge)
2. (Scot.) A ventilating furnace in a mine. (Barrowman)

Cube coal. 1. A layer of hard greenish clay found at the top of a coal seam in parts of Pennsylvania and West Virginia. It breaks readily into cubes of nearly perfect shape. Sometimes called Rooster coal. 2. (Eng.) Coal broken into cubes, of about one foot on each side, to suit certain trade. (Gresley)

Cube ore (Eng.). An arsenate of iron, $6FeAsO_4.2Fe(OH)_6+12H_2O$, of an olive-green to yellowish brown color, and occurring commonly in cubes with the copper ores of Cornwall and other localities. Pharmacosiderite. (Dana)

Cube powder. Gunpowder made in large cubical grains and burning more slowly than the small or irregular grains. (Century)

Cube spar. Same as Anhydrite. (Standard)

Cubeta (Mex.). Bucket (Dwight). A small barrel or cask.

Cubical cleavage. Equally good cleavage in three mutually perpendicular directions. (Butler)

Cubicite; Cubizite. Cubic zeolite, or analcime. (Century)

Cúbico (Sp.). Cubic. (Dwight)

Cubic stock. Blocks of stone approximately cubical in form as contrasted with thin stock or slabs. (Bowles)

Cubierto (Sp.). 1. The bonnet of a safety cage. 2. The overburden of a placer mine. 3. The outer jacket of a furnace. (Halse)

Cubilete (Sp.). A kind of shallow bucket for hoisting ore. (Halse)

Cubilote (Sp.). A cupola smelting furnace; a smelting pot. (Halse)

Cubo (Mex.). 1. Bucket; kibble. 2. The third power of a number. (Dwight)

Cuchara (Peru). 1. A spoon; ladle; scraper. 2. A utensil made of horn, in which minerals are washed as a rough test of value. 3. (Mex.) Blade of water wheel. (Dwight)

Cucharilla (Mex.). An iron rod, used in drilling, to remove drill cuttings from a dry hole. (Dwight)

Cucurucho (Mex.). A leather cover to protect miners at work from falling water or rocks. (Dwight)

Cuddy. 1. (Scot.) A donkey. 2. A lever mounted on a tripod for lifting stones, leveling up railroad ties, etc. (Webster)
3. A weight mounted on wheels; a loaded bogie, used to counter balance the tub or car on an inclined roadway (Barrowman). Also spelled Cuddie.

Cuddy brae (Scot.). An inclined roadway, worked in the same manner as a self-acting incline. (Barrowman)

Cuele (Mex.). 1. The distance a tunnel or other work is extended during a certain time. (Dwight)
2. The bottom of a shaft. (Halse)

Cuenca (Mex.). 1. Broad valley. 2. Geological basin (Dwight). *C. carbonifera*, a coal measure or basin. (Halse)

Cuenta (Sp.). A lenticular mass of ore. (Halse)

Cuerda (Sp.). 1. A cord or small rope. 2. (Mex.) Limits of a mining property. 3. (Mex.) A row of men who pass blocks of ore from hand to hand. 4. A cord of firewood. (Halse)

Cuero (Sp.). **1.** A hide, generally of oxen, cows, etc. (Halse)
2. (Mex.) A leather bucket. (Dwight)

Cuerpo. **1.** (Peru and Mex.) An ore body. **2.** A mass of pulp in process of amalgamation (Dwight)
3. (Mex.) A globule of mercury. **4.** *C. del alto*, the hanging-wall branch of a vein; *C. del medio*, the center branch of a vein; *C. del bajo*, the foot-wall branch of a vein. **5.** *C. de mineros*, the personnel of a mine. (Halse)

Cuesco (Mex.). Coarse ore; a re-cemented, fragmentary rock. (Dwight)

Cuesta (Sp.). A sloping plain, especially one with the upper end at the crest of a cliff; a hill or ridge with one face steep and the opposite face gently sloping. Common in Southwestern United States. (Webster)

Cueva (Sp.). **1.** A cave or grotto. **2.** (Spain) Old Roman shafts and headings, sometimes full of water and running sand or mud. **3.** (Colom.) Placer gravel covered by large blocks of granite making its extraction very laborious. (Halse)

Cuffat (Fr.). A vessel consisting of a shallow tub fitted with 4 wheels and attached to chains at the sides for hoisting coal. The coal is piled in a conical form and kept from falling off by iron rings placed one above another. (Gresley)

Cui (Fr. Guiana). A hemispherical vessel made of tin plate, used in draining placers. (Halse)

Cuiller (Fr.). A long, wrought-iron, cylindrical bucket in which waste from shaft sinking is brought to the surface. (Gresley)

Cuinage (Eng.). The official stamping of pigs of tin for market (Standard). A corruption of coinage.

Culbuteur (Belg.). A dumping apparatus which turns completely over, or around, when emptying cars. (Gresley)

Culet. The small, lower terminus of a brilliant-cut gem, parallel to the table. (Standard)

Culm. **1.** (Eng.) Anthracite. (Welsh) A kind of coal, of indifferent quality, burning with a small flame, and emitting a disagreeable odor. (Humble)
2. (Penn.) The waste or slack of the Pennsylvania anthracite mines, consisting of fine coal, more or less pure, and coal dust and dirt. (Raymond)
3. In the usage of many European authors, the Lower Carboniferous or Dinantian series of the Carboniferous system of rocks in western Europe, especially where consisting largely of siliceous beds with little limestone (La Forge). Called in Ireland, Calp.

Culm bank; Culm dump. A heap or pile of waste kept separate from the rock and slate dumps. *See* Culm, 2. (Chance)

Culm bar. A peculiar bar used in grates designed for burning culm or slack coal. (Century)

Culmiferous. Containing culm, as coal. (Standard)

Culmophyre. A rock in which the phenocrysts are arranged in clusters or irregular groups. (Iddings, p. 224)

Culo (Sp.). The lower or inner part of a drill hole. (Halse)

Cumberlandite. A name derived from Cumberland Hill, R. I., proposed by Wadsworth for the ultra-basic, igneous rocks, forming the hill. It is an aggregate of titaniferous magnetite, plagioclase, olivine and secondary minerals, but contains from 40–45 per cent iron oxides and about 10 per cent TiO_2. (Kemp)

Cumberland method of mining. *See* Top slicing and cover caving. *Also* Top slicing combined with ore caving.

Cumbre (Sp.). Top or summit of a mountain or hill. (Halse)

Cumene. A hydrocarbon, C_9H_{12}, first found by De la Rue and Muller in Rangoon oil. (Mitzakis)

Cumulites. Vogelsang's name for spherulitic aggregates of globules. (Kemp)

Cumulose deposits. Peat, muck and swamp soils in part. (Watson)

Cuna (Sp.). A cradle used in gold washing. (Halse)

Cuña. **1.** (Sp.) A wedge or gad. **2.** (Sp.) A "horse" of ground. **3.** (Colom.) Pillars left in stopes for supporting the main levels. (Halse)

Cundy; Cundie. **1.** (Scot.) The spaces from which coal has been worked out, partly filled with dirt and rubbish between the packs (Gresley). *See* Goaf.
2. (Aust.) The passage under a roadway into which an endless rope

passes out of the way at the end of its track. Also called Conduct (Power). A variation o fConduit.

Cuneta (Sp.). 1. A small trench. 2. The drain or gutter of an adit level or gangway. (Halse)

Cup-and-cone. A machine for charging a shaft furnace, consisting of an iron hopper with a large central opening, which is closed by a cone or bell, pulled up into it from below. In the annular space around this cone, the ore, fuel, etc., are placed; then the cone is lowered to drop the materials into the furnace; after which it is again raised to close the hole. (Raymond)

Cupel. A small, shallow, porous cup, especially of bone ash: used in assaying to separate precious metals from lead, etc.; also a larger form for commercial refining. (Webster)

Cupel dust. A powder used in purifying metals; also called Coppel dust. (Century)

Cupellation. 1. The treatment on a hearth or cupel (usually formed of bone ash) of an alloy of lead, gold, and silver, by means of fusion and an air blast, which oxidizes the lead to litharge, and removes it in liquid form, or absorbs it in the cupel. (Raymond)
2. As applied to lead smelting, it is the final separation of lead and silver, and consists in melting and heating in a reverberatory furnace argentiferous lead with access of air to the temperature at which litharge forms on its surface. (Hofman, p. 506)

Cúpola (Sp.). A cupelling furnace. (Halse)

Cupola. 1. A shaft furnace with a blast, for remelting metals, preparatory to casting. Sometimes incorrectly pronounced and written Cupelo. (Raymond)
2. The offtake for smoke and return air erected at or near to the top of the upcast shaft. (Gresley)
3. A domical-shaped projection of igneous material from a batholith. Many stocks are cupolas on batholiths. (Daly, p. 102)
4. A circular kiln, with a domed roof, used for burning brick. (Webster)

Cupola furnace. A shaft furnace built more slightly than the ordinary blast furnace, and usually of fire brick, hooped or cased with iron. It is chiefly used for remelting cast-iron for foundry purposes. (Century). *See* Cupola, 1.

Cupriferous. Copper-bearing. The Nipigon or Keweenawan formation. (Winchell)

Cuprita (Sp.). The mineral cuprite. (Dwight)

Cuprite. Native red copper oxide, Cu_2O. Contains 88.8 per cent copper. (U. S. Geol. Surv.)

Cuproapatite. A variety of apatite from Chile containing copper. (Standard)

Cuprotungstite. A tungsten-bearing mineral, $CuWO_4+2H_2O$, also $(CaCu)WO_4+2H_2O$. Its composition is variable, and it may easily be mistaken for some mineral of the epidote group.

Cuprous. Of, pertaining to, or containing copper. (Webster)

Cuprum. Copper; the chemical symbol is Cu.

Cúpula, cúpola (Sp.). The cap or dome of a reverberatory furnace; steam-dome of a boiler, etc. (Halse)

Curador (Mex.) A guardian of property; trustee. (Dwight)

Curb. 1. A timber frame, circular or square, wedged in a shaft to make a foundation for walling or tubbing, or to support, with or without other timbering, the walls of the shaft. (Raymond)
2. The heavy frame or sill at the top of a shaft. (Steel)
3. In tunnel construction a ring of brickwork or of cast iron, at the base of a shaft, surmounting a circular orifice in the roof of the tunnel. A Drum-curb, is a flat ring of cast iron for supporting the brickwork. having the same diameter externally as the shaft of brickwork. Temporary curbs of oak are also used. (Simms)
4. An iron border to the incorporating bed of a gunpowder mill. 5. An iron casing in which to ram loam molds for casting. 6. The walls of a chamber in which sulphuric acid is made. (Webster)

Curbing. *See* Curb, 1; Crib, Cribbing and Back-casing.

Curb tubbing (Eng.). Solid wood tubbing. (Gresley)

Curf (Som.). The floor of an underground road which is being taken up. *See also* Canch. (Gresley)

Curi (Ecuador). Gold, hence the Cutaráy river. (Halse)

Curie point. The temperature lying above the red heat, at which certain bodies, such as, iron, nickel, magnetite, etc., lose the property of ferromagnetism and become paramagnetic. (Webster)

Curie's law. The law, established by Pierre Curie, that magnetic susceptibility is inversely proportional to the absolute temperature. (Webster)

Curley cannel (Eng.). Cannel coal which breaks with a conchoidal or curly fracture. (Gresley)

Curlstone (Shrop). Ironstone exhibiting cone-in-cone formation. (Gresley)

Curly shale. 1. (Scot.) A Pumpherston oil shale. Its thickness is about 6 ft., and it yields 20 gal. of crude oil and from 60 to 70 lb. of ammonium sulphate per ton. (Bacon)
2. (U. S.) Any folded and distorted oil shale.

Current. 1. A body of fluid moving continuously in a certain direction, as a current of water or air. 2. A movement of electricity analogous to the motion of a stream of water or other liquid. (Webster)

Current bedding. *See* False bedding.

Current density. The amount of electric current per unit of cross-section area of the conductor, at any part of the circuit. (Webster)

Current meter. 1. An instrument, as a galvanometer, for measuring the strength of an electric current. (Standard)
2. Any instrument for measuring the velocity force, etc., of currents. (Webster)

Curry pit (Leic.). A hole sunk from an upper to a lower portion of a thick seam of coal through which the return air passes from the stalls to the airway. (Gresley)

Curtain. A sheet of brattice cloth hung across an entry in such a way that it prevents the passage of the air current but does not hinder the passage of mules or mine cars. (Steel)

Curtain of coal (West Penn.). A thin pillar left in lieu of timbers for support. It also has the advantage of being a permanent wall and thus assists in directing ventilation.

Curtir (Sp.). The operation of adding lime to warm ores, or magistral to cold ores in amalgamation. (Min. Jour.)

Curva (Mex.) Curve. (Dwight)

Cuselite. Rosenbusch's name for a peculiar variety of augite-porphyrite from Cusel, in the Saar basin. Germany. (Kemp)

Cushioned hammer. A power-hammer striking a cushioned blow. (Standard)

Cut. 1. To intersect a vein or working. 2. To excavate coal. (Raymond)
3. To shear one side of an entry or crosscut by digging out the coal from floor to roof with a pick (Steel). *See also* Undercut, 1.
4 (Som.). A staple or drop-pit, which *see*. 5. (Scot.). *See* Buttock.
6. (Eng.). The depth to which a drill hole is put in for blasting. (Gresley)
7. A term applied where the cutting machine has cut under the coal to a depth of five feet and for a width of fifteen feet. (Stratton v. Northeast Coal Co., 164 Kentucky, p. 302)

Cut chain (Scot.). A system of working underground self-acting inclined planes from several different levels, by means of chains of various lengths which are regulated according to the level from which coal is lowered. (Gresley)

Cut-chain brae (Scot.). An incline on which cut chains are used. (Barrowman)

Cut coal (Scot.). In stoop-and-room working, coal cut on two sides where two rooms at right angles to each other just meet. (Barrowman)

Cut holes. The first round of holes fired in a tunnel or shaft (Du Pont). They are so placed as to force out a cone-shaped core in the center of a heading, and relieve the burden on the second round of shots.

Cut-off. 1. A quarryman's term for the direction along which the granite must be channeled, because it will not split. Same as Hard way. (Perkins)
2. The new and relatively short channel formed when a stream cuts through the neck of an oxbow. 3. The act of shutting off the admission of steam to an engine; also the mechanism for effecting this cut-off at the proper point in the cycle. (Webster)
4. *See* Cut-off entry.

Cut-off entry. An entry driven to intersect another and furnish a more convenient outlet for the coal. Also called Cut-off. *See* Entry. (Steel)

Cut-out. 1. (Forest of Dean). *See* Crutt or Branch, 1. 2. (Eng.) A fault which dislocates a seam of coal more than its entire thickness. (Gresley)
3. A device for cutting out a portion of an electric circuit, generally including a fuse designed to melt when the current exceeds a certain strength. A circuit breaker. (Webster)

Cut-over (Mid.). To cut a seam of coal in a long-wall working, over or beyond the first joint or cleat. (Gresley)

Cuts (Scot.). Strips of coal worked off the sides of pillars (Gresley). Also called Slices, or Skips.

Cut shot. A shot designed to bring down coal which has been sheared or opened on one side. (Barrowman)

Cutter. 1. A term employed in speaking of any coal-cutting or rock-cutting machine; the men operating them, or the men engaged in underholing by pick or drill. (Steel)
2. (Scot.) A fissure or natural crack in strata. (Gresley)
3. A joint, usually a dip joint, running in the direction of working (Webster). Usually in the plural.
4. (Mt. Pleasant, Tenn.) An opening in limestone, enlarged from cracks as fissures, by solution, which is filled by clay and usually contains valuable quantities of brown phosphate rock. (W. C. Phalen, mineral technologist, U. S. Bur. Mines)
5. A crack in a crystal which destroys or lessens its value as a lapidary's stone. (Century)

Cutter bar. That part of a chain mining machine that supports the cutting chain and extends under the coal. (Harr)

Cuttery (Scot.). Much intersected with joints or fissures, *e. g.*, cuttery sandstone. (Barrowman)

Cut-through. 1. (No. Staff.). An opening between headings every 18 to 20 yards in mines having a steep inclination. *See also* Dip, 3 and 4. (Gresley)
2. (Aust.). A connection between bords, used for ventilation and traveling purposes. (Power)

Cutting. 1. (Eng.) The end or side of a stall next to the solid coal where the coal is cut with a pick in a vertical line to facilitate breaking down. Channeling. (Gresley)
2. The opening made by shearing or cutting. (Steel)
3. Low-grade ore or refuse obtained from dressing ore. 4. The operation of making openings across a coal seam as by channeling or beneath a coal seam as by undercutting.

Cutting box. A box into which diamond dust falls when the diamonds which are cemented into the cutter and setter are rubbed against each other. (Century)

Cutting chain. The sprocket chain which carries the steel points used for undermining the coal with chain mining-machines. (Steel)

Cutting down. The trimming of shaft walls to increase its sectional area. (C. and M. M. P.)

Cutting shot (Ark.). A shot put in beside a cutting so as to blast some coal into it and to shatter the coal beyond for aid in making the next cutting. *See also* Shot. (Steel)

Cut-up (Scot.). An excessive roof fall leaving a large open space above. (Gresley)

Cuvelage (Fr.). Same as Tubbing.

Cuvette. 1. (Fr.) A bowl or basin of pottery or china; a flat-bottomed piece containing a water pot. 2. The vessel in which molten glass is received from the refining-pot and borne to the table for casting and rolling. (Standard)

Cuyuna. The name of an iron range in Minnesota. It is composed of the syllables, "Cuy" and "Una", the former being a contraction of the given name of Cuyler Adams who was active in the early development of that territory, and the last syllable is the name of his dog "Una"

Cwt. An abbreviation for a hundredweight, or 112 pounds avoirdupois.

Cyanamid. A trade name for a material containing about 50 per cent true cyanamide (CH_2N_2), and 25 per cent calcium hydroxide. Commercial cyanamid is made by passing nitrogen over a heated mass of calcium carbide (CaC_2) and contains 35.0 per cent nitrogen.

Cyanamide. A white crystalline compound (CH_2N_2) formed by the action of cyanogen chloride on ammonia. (Standard)

Cyanidation. 1. Conversion of gold into a double cyanide of potassium and gold by the action of cyanide of potassium (Duryee). *See* Cyanide process. 2. The act or process of cyaniding. (Webster)

Cyanide. 1. A compound of cyanogen with an element or radical. 2. To treat with cyanide (Webster). Potassium and sodium cyanides are used in the extraction of gold.

Cyanide mill. A mill in which the cyanide process is carried on. (Webster)

Cyanide process. A process for the extraction of gold from finely crushed ores, concentrates and tailings by means of cyanide of potasium used in dilute solutions. The gold is dissolved by the solution and subsequently deposited upon metallic zinc or by other means. (Skinner). *See also* McArthur and Forest process.

Cyanite; Disthene. A mineral identical in chemical composition with andalusite and sillimanite, $Al_2O_3.SiO_2$, but differing in crystal form. Generally in flat-bladed pieces. Sometimes used as a gem. (U. S. Geol. Surv.) Also spelled Kyanite.

Cyanogen. 1. A univalent radical, CN, composed of carbon and nitrogen, present in hydrocyanic acid and the cyanides. 2. A colorless, poisonous gas, $(CN)_2$, with an odor like that of peach leaves. (Webster)

Cyanotype. A simple method of producing photographs, usually blue in color, by the use of paper, linen or the like, coated with certain compounds of cyanogen and iron. Also a print so obtained. It is used for copying maps and charts. (Webster)

Cyanuret. A former name for cyanide. (Standard)

Cyclic. Applied to any action or process that after going through a certain course, or accomplishing a definite order of changes, begins again the same course or order, and so on indefinitely until some new influence stops or changes the action. (Ransome)

Cyclic twin. Composed of parts which appear to have been alternately revolved 180° upon non-parallel twinning planes. The varieties with names are trillings, fourlings, sixlings and eightlings. (Butler)

Cylinder metal. Cast iron alloyed with two or more per cent of manganese and possessing a low coefficient of friction when highly polished. Used for engine cylinders. (Webster)

Cymogene. A product obtained by the redistillation of American petroleum (Mitzakis). Usually nearly pure butane.

Cymophane. A synonym for Cat's-eye.

Cyprine. A variety of vesuvianite or idocrase, of a blue tint, which is supposed to be due to copper. (Century)

Cyrtolite. A yellowish to brownish mineral containing zirconia, yttria, ceria, and other rare earths. Found in pegmatites. (U. S. Geol. Surv.)

D.

Dacite. A vitrophyric or felsophyric, generally volcanic, igneous rock, containing essential plagioclase and quartz, with or without hornblende and biotite or both; quartz andesite. (La Forge)

Dacker (Eng.). Insufficient ventilation of a mine (Bainbridge). Dead air.

Dacker of wind (Derb.). Poor ventilation in a mine. (Hooson)

Dad (No. of Eng.). In coal mining, to mix (fire damp) with atmospheric air to such an extent that the mixture is incapable of exploding (Century). Also called Dash.

Dado (Sp.). 1. Die of a stamp mill. 2. A stone on which a horse whim (malacate) works. (Halse)

Dag (Aust.). A system whereby the earnings of members of the Coalminers' Federation are practically equalized. (Power). *Compare* Darg.

Dagger (Ark.). A T-shaped iron about 4 feet long, used to force an auger into hard coal. The point is placed in a hole dug in the floor while the miner drilling the hole presses his breast against the crossbar. The end of the auger fits into any one of a number of recesses in the stem of the dagger. (Steel)

Dagh (Turkey). Hill; mountain. (Crofutt)

Dagner condenser. A series of muffle-shaped pipes through which distilled zinc is passed for condensation. (Ingalls, p. 551)

Dahamite. A name derived from Dahamis, a place on the island of Socotra, and given by A. Pelikan to a dike rock of brown color, compact texture with red phenocrysts of tabular albite or albite-oligoclase. The mineralogical composition as shown by recasting an analysis is albite, 43.8; anorthite, 2.8; orthoclase, 12.2; quartz, 31.5; riebeckite, 6.8. The rock appears to be a variety of paisanite. (Kemp)

Daily report. *See* Boring journal.

Dalama (Zambesi). Gold. (Lock)

Dale. 1. (Scot.) A measure by which coal was formerly sold in the east of Scotland. (Barrowman)
2. A low place between hills; a valley. (Webster)

Dalton's law (multiple proportions). If two elements *A* and *B* form several compounds with each other, and we consider any fixed mass of *A*, then the different masses of *B* which combine with the fixed mass *A* bear a simple ratio to one another (Liddell). Thus, iron and oxygen unite in the proportion FeO, Fe_2O_3 and Fe_3O_4. in which compounds (considering the oxygen) 3 and 4 are simple multiples of one.

Dam. 1. A barrier to keep foul air, or water, from mine workings (Davies). *See* Stopping; *also* Bulkhead.
2. The wall of refractory material, forming the front of the fore-hearth of a blast furnace. It is built on the inside of a supporting iron plate (dam plate). Iron is tapped through a hole in the dam, and cinder through a notch in the top of the dam. *See also* Lurmann front. (Raymond)

Dama (Sp.). A dam or stone at the end of a fire hearth of a furnace. (Halse)

Damaged-ground rent (Eng.). Usually double agricultural rent for land occupied by engines, heapstead, shops, houses, railways, etc. (G. C. Greenwell)

Damask. The etched or "watered" surface produced on polished (welded) steel, by corrosion. (Raymond)

Damourite. A hydrous muscovite. (Dana)

Damourite-schist. A schistose metamorphic rock composed largely or wholly of damourite. It comprises much of what was formerly called hydromica schist. (La Forge)

Damp. A general term for gaseous products formed in coal mines, etc., as distinguished from pure air. *See also* Afterdamp; Black damp; Choke damp; Fire damp; Stink damp; White damp.

Damped (Eng.). Suffocated by gas or foul air in a mine. (Gresley)

Damper. A valve in a flue or at the top of chimney to regulate the draft. (Raymond)

Dam plate. In a blast furnace, the cast-iron plate which supports the dam or dam stone in front (Century). *See* Dam, 2.

Damposcope (Scot.). An instrument invented by Professor Forbes, Glasgow, for detecting fire damp. (Described in Trans. Min. Inst. Scotland, vol. 1, p. 278.) (Barrowman)

Damp sheet (So. Staff.). A large sheet placed as a curtain or partition across a gate road to stop and turn an air current. (Raymond)

Dampy (Mid.). Mine air mixed with so much carbonic acid gas as to cause the lights to burn badly or to go out. (Gresley)

Dam shale. A Scottish oil shale. (Bacon)

Dam stone. The wall of fire brick or stone inclosing the front of the hearth in a blast furnace. *See also* Dam, 2. (Century)

Dan. 1. (Mid.). A tub or barrel, sometimes with and sometimes without wheels, in which mine water is conveyed along underground roadways to the sump or raised to the surface. 2. A small box or sledge for carrying coal or waste in a mine. (Gresley)

Danalite. A flesh-red to gray translucent sulpho-silicate, $(Be, Fe, Zn, Mn)_7Si_3O_2S$, mineral, usually massive but sometimes crystallizing in the isometric system. (Standard)

Danburite. A pale-yellow to colorless, vitreous, translucent to transparent, calcium boro-silicate mineral, $CaB_2(SiO_4)_2$, crystallizing in the orthorhombic system. (Dana)

Dander (Scot.). A piece of slag, vitrified refuse, or calcined cinder. (Webster)

Dandered coal (Scot.). Coal burned by, and generally mixed with trap rock (Barrowman). *See also* Natural coke.

Danforth's oil. *See* Naptha.

Danger board (Scot.). A board on which notice is given, warning against entering a dangerous part of the mine workings (Barrowman). *See also* Fire board.

Danger signal. A signal consisting of a board, shovel, or other material with appropriate markings thereon, placed in the front of a room or entry containing an explosive mixture of fire damp. (Roy). *Also*, a placard to indicate the location of dangerous machinery, electric wires, explosives, mine openings, etc.

Danks. Black shale mingled with fine coal. (Standard)

Danks' puddler. A revolving mechanical puddler. *See also* Puddling. (Raymond)

Dant. 1. (Newc.) Soft, inferior coal; mineral charcoal. (Raymond)
2. To reduce, as a metal, to a lower temperature. (Standard)

Danty (No. of Eng.). Disintegrated coal. (Gresley)

Dap. A notch cut in a timber to receive another timber. (C. M. P.)

Daqapskite. A hydrous sodium nitrate and sulphate mineral, $NaNO_3.Na_2SO_4+H_2O$. (Dana)

Dar cuele (Mex.). To drive a level. (Dwight)

Darg. 1. (No. of Eng.) A specified quantity or weight of mineral agreed by the managers and men to be produced during a shift for a certain sum of money. (Gresley)
2. (Scot.) To work by the day.
3. A days' labor; toil. 4. *See* Dag.

Darger (Scot.). One who works by the day. (Standard)

Dark ruby silver. *See* Pyrargyrite.

Darrlinge (Ger.). Residue of copper resulting from the process of separating silver from copper by liquation. (Whitney)

Dash (No. of Eng.). *See* Dad:

Dashing (Eng.). Increasing the amount of air in mines to prevent explosions of mine gases. (Bainbridge). *See also* Dad.

Dash pot. 1. A device for cushioning or damping a movement to avoid shock, consisting essentially of a cylinder containing air or a liquid and a piston moving in it. 2. A device for closing the valves on a Corliss engine, actuated by atmospheric pressure or a spring. (Webster)

Dass. 1. (Scot.). A slice or cut taken off a pillar in stoping. (Barrowman)
2. A stratum. 3. To work in or cut out layers from the face of a cliff. A variation of Dess. (Webster)

Datalling (Eng.). Blowing (blasting) down roof in a mine. (Gresley)

Datlers (Lanc.). Men who work underground, and are paid by the day; not contractors. (Gresley)

Datolite. A hydrous silicate of boron and calcium, $H_2O.2CaO.B_2O_3.2SiO_2$. The mineral is used as a gem. (U. S. Geol. Surv.)

Datolite group. A group of minerals, the species of which are usually regarded as orthosilicates, $HR'R''SiO_5$, or $R'_3R''_2(SiO_5)_2$; R'= Ca, Be, Fe, chiefly; R''=Boron, the yttrium (and cerium) metals, etc. All of the minerals of this group crystallize in the monoclynic system. (Dana)

Datum. 1. Any position or element in relation to which others are determined, as datum point; datum line; datum plane. 2. The mean low-water mark of all tides, assumed as a base of reckoning. (Webster)

Datum level. The level (usually sea level or mean level of nearest considerable body of water) from which altitudes are measured in surveys. (Weed)

Datum water level. The level at which water is first struck in a shaft. (C. and M. M. P.)

Daugh (Scot.). Soft fire clay associated with a seam of coal, and in which the holing is usually made. (Barrowman)

Dauk; Dawk; Douk (Eng.). Tough; compact; sandy clay. (Power)

Davis furnace. A long, one-hearth reverberatory furnace, heated by lateral fireplaces for roasting sulphide ore. (Ingalls, p. 97)

Davy; Davy lamp. A safety lamp invented by Sir Humphrey Davy in 1815 for the protection of coal miners. Its safety feature consisted of a fine-wire gauze inclosing the flame to keep it from coming in contact with mine gas.

Davy man (Newc.). The man who trims and repairs the Davy lamps. (Min. Jour.)

Dawling (Derb.). A failing ore body, both in quality and quantity. (Hoo-son)

Dawsonite. A basic carbonate of aluminium and sodium, $Na_3Al(CO_3)_3$. $2Al(OH)_3$, mineral occurring in thin incrustations of white radiating bladed crystals. (Dana)

Dawson producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 305)

Day. 1. A term used to signify the surface; thus, "driven to day," meaning to daylight, therefore to the surface. (Chance)
2. (Wales) The surface of the ground over a mine. Day level,—An adit. Day water—Water from the surface. (Raymond)
3. (Derb.) Ore that is found near the surface. (Mander)

Day-coal. The upper stratum of coal; as nearest the light or surface. (Webster)

Day drift. A drift with one end at the surface (Webster). An adit.

Day eyes (Wales). Inclined planes driven from the surface to the coal bed. (Gresley)

Day fall. *See also* Crop fall.

Day hole. Any heading or level in a mine communicating with the surface. (Century)

Day level (Scot.). A level driven from the surface (Barrowman). An adit.

Daylight mine (Scot.). A mine or drift extending to the surface. (Barrowman)

Day man. A coal mine employee paid by the day as distinguished from those paid by the piece, or by contract. Also called Company man. (Steel)

Day pair (Corn.). Miners who work underground during the day (Pryce). The day shift.

Day shift. A group of miners, or other laborers, who work during the day.

Day stone (Eng.). A rock lying exposed in its natural state. (Webster)

Day water. Surface water. (Webster)

Daywork. All work other than that done by the piece or contract, such as repairing roads, handling cars, etc. Also called Company work and does not include work for which the men are paid by the month (Steel). Work performed by day men.

Dead. 1. (Corn.) Unventilated. 2. As to a vein or piece of ground, unproductive. (Raymond)
3. (Eng.). The creep, after subsidence or upheaval has taken place to the full extent. (Gresley)

Dead air. The air of a mine when it contains carbonic-acid gas (black damp), or when ventilation is sluggish. (Stewart)

Dead coal (Kansas). A noncoking coal mined from strip pits and used for zinc smelting. (Stewart)

Dead-dipping. The act or process of imparting a dead, or dull, surface to brass or other metal by dipping it in an acid. (Webster)

Dead end. An entry, gangway, level, or other mine passage extending beyond the mine workings into solid coal or ore; a stub. *See* Stub entry.

Dead end (of a pipe). The closed end of a pipe or system of pipes. (Nat. Tube Co.)

Deadened mercury. *See* Floured.

Deadfall. A dumping platform at the mouth of a mine. (Standard)

Dead glacier. A stagnant glacier; a fossil glacier. (Century)

Dead ground. 1. Rock in a mine, which, although producing no ore, requires to be removed in order to get at productive ground. (Roy. Com.)
2. A faulty or barren area of coal strata. (Gresley)

Deadhead. 1. An extra length given to a cast object, as a cannon, to put pressure on the molten metal below so that dross and gases may rise into it; a sullage piece; a sinking-head. 2. That part of a casting filling up the ingate; a sprue. (Standard)

Dead hole. A shallow hole in an iron casting. (Standard)

Deading (Glouc., Som.). Same as Deadwork.

Dead-line. A row of marked empty powder kegs or other danger signal placed by the fire boss to warn miners not to enter workings containing gas. (Steel)

Dead lode. A lode not containing valuable minerals in paying quantity.

Deadman. 1. A buried log, or the like, serving as an anchor, as for a guy rope. (Webster)
2. A wooden block used to guard the mouth of a mine against runaway cars. (Connors-Weyman Steel Co. *v.* Kilgore, 66 Southern, p. 612)

Dead mens' graves (Aust.). Grave-like mounds in the basalt underlying auriferous gravels. (C. and M. M. P.)

Dead oil. A name given to those products of distillation consisting of carbolic acid, naphthalin, etc., obtained in the distillation of coal tar, which are heavier than water and which come off at about 340° F., or over. (Century)

Dead-plate. A nearly horizontal iron plate, at the mouth of the furnace, under a steam boiler, on which the bituminous coal charges are laid to be partly coked before they are pushed upon the grate where their solid carbon is consumed. The gases evolved on the dead-plate pass over the grate and are burned. (Raymond)

Dead quartz. Quartz carrying no valuable mineral. (Ihlseng)

Dead rent. A certain, fixed, or minimum rent paid at specified times by a lessee, whether the mine is worked or not. (Vandalia Coal Co. *v.* Underwood, 111 N. E. Rept., p. 330; New York Coal Co. *v.* New Pittsburgh Coal Co., 99 N. E. Rept., 198)

Dead riches. Base bullion. (Miller)

Dead roast. Roasting carried to the farthest practicable degree in the expulsion of sulphur. (Raymond)

Dead rock. The material removed in the opening of a mine, that is of no value for milling purposes. Waste rock. (Duryee)

Dead rope (Aust.). Same as Buffer rope.

Deads. 1. (Corn.) The waste rock, packed in excavations from which ore or coal has been extracted. (Raymond)
2. The barren rock which incloses the ore on every side. The wall rock.

Dead small (No. of Eng.). The smallest coal which passes through the screening or separating apparatus. (Gresley)

Dead-stroke hammer. A power hammer striking an uncushioned or inelastic blow. (Standard)

Dead water. Standing or still water. (Webster)

Dead weight. The unrelieved weight of anything inert. A heavy or oppressive burden. (Webster)

Deadwork. Work that is not directly productive, though it may be necessary for exploration and future production (Raymond). Unfinished work.

Deaf ore. (Derb.). Gouge containing small grains of valuable mineral. Considered as indicating that the main orebody is not far away. (Hooson)

Deal. 1. Plank used in shaft and gallery construction. (Raymond)
2. A board or plank of varying dimensions. In Canada it is a board 12 feet long, 11 inches wide and 2½ inches thick; in England, a board not exceeding 3 inches thick and 9 inches wide. (Standard)

Deal-end (Eng.). A plank less than 6 feet long. (Standard)

Dean (Corn.). The end of a level. (Raymond)

Debacle. 1. A great rush of waters, which, breaking down all opposing barriers, carries forward the broken fragments of rocks, and spreads them in its course. (Comstock)
2. The breaking up of ice in a stream. A violent dispersion or disruption. (Webster)

De Bavay process. A flotation process invented by Auguste J. F. De Bavay in 1904, in which a freely flowing pulp is brought to the surface of a vessel of water, where advantage is taken of the surface tension of the liquid, and the sulphide floated. A film of carbonate on the sulphide, from weathering, is detrimental, and is removed by soaking the ore in a weak solution of carbonate of ammonia, or by passing carbon dioxide through the pulverized wet ore, or by friction. In the original process no oil or acid was used. Later these were also used. (Liddell)

Débil (Mex.). Weak; a term applied to amalgam when very fluid. (Eggleston)

Débris. Rock fragments, sand, earth, and sometimes organic matter, in a heterogeneous mass, as at the foot

of a cliff. 2. The silt, sand, and gravel that flow from hydraulic mines; called in miner's parlance, tailings, slums, and sometimes slickens. *See also* Tailings. (Hanks. *Also* U. S. Min. Stat., p. 940)

Débris deposits. Refuse from hydraulic mining operations. (U. S. Min. Stat., p. 933–945)

Decantation. The act of pouring off a liquid so as not to disturb a sediment or precipitate. (Webster)

Decanter. 1. A vessel used to decant liquors or for receiving decanted liquors, as in a laboratory. (Webster)
2. An apparatus for sorting and classifying tailings from gold-washing operations.

Deck. The platform of a cage upon which the cars and men ride. Cages are occasionally made with two, three, or four decks. (Gresley)

Decken structure. A series of great overthrust folds with nearly parallel and horizontal axial planes. (Lieth, p. 117)

Decking. The operation of changing the tubs on a cage at top and bottom of a shaft. Caging. (Gresley)

Deck molding. Trimming made to match cresting or ridging, on clay-tiled roofs, and used for the purpose of covering the planes of a roof which has a flat deck. (Ries)

Declaratory statement. In practical mining operations, a term applied to the statutory certificate of location and is a notice or statement of the location, containing a description of the mining claim, verified by the oath of the locator, performing, when recorded, a permanent function, and is the beginning of the locator's paper title, is the first muniment of such title and is constructive notice to all the world of its contents. (Gird *v.* California Oil Co., 60 Fed. Rept., p. 536; Peters *v.* Tonopah Min. Co., 120 Fed. Rept., p. 589; Magruder *v.* Oregon, etc., R. Co., 28 Land Decisions, p. 173; Pollard *v.* Shively, 5 Colorado, p. 312; Metcalf *v.* Prescott, 10 Montana, p. 284)

Declared selling price (Aust.). The nominal selling price of coal declared by the mine owners in the Newcastle district, N. S. W., every September, on which the payment to miners is based. (Power)

Declination. The angle which the magnetic needle makes with the geographical meridian. It is said to be east or west, according as the north end of the needle points to the east or west of the geographical meridian.

Declinometer. An instrument, often self-registering, for measuring or recording the declination of the magnetic needle. (Standard)

Decompose. To separate the constituent parts of; to resolve into the original elements; to rot or decay. (Webster)

Decomposing furnace. A furnace used in the conversion of common salt into sulphate of soda, aided by the action of sulphuric acid. (Century)

Decomposition. The breaking up or decay of compounds into simpler chemical forms. (Roy. Com.)

Decrepitate. To roast or calcine so as to cause crackling; to crackle, as salt, from the presence of moisture, when heated. (Webster)

Decrepitation. The breaking up with a crackling noise of mineral substances when exposed to heat, as when common salt is thrown upon the fire. (Roy. Com.)

Deeds (No. of Eng.). Débris or waste thrown upon the spoil bank (dump). (Gresley). A variation of Deads.

Deep. 1. (Corn.) The lower portion of a vein; used in the phrase "to the deep," *i. e.*, downward upon the vein. (Raymond)
2. Workings below the level of the pit bottom or main levels extending therefrom. 3. (Forest of Dean; Lanc.) A vein, seam, mine, or bed of coal or ironstone. (Gresley)

Deep coal (Eng.). Coal seams lying at a depth of 1,800 feet or more below the surface. (Gresley)

Deep leads. Alluvial deposits of gold or tinstone buried below a considerable thickness of soil or rock. (Duryee)

Deep-level (Trans.). In South Africa, the first mining properties developed from the surface were estopped from trespassing beyond their side lines projected downward. The next mine on the dip of the lode became known as the "deep-level" mine or "deep." *Jour.*, Chem., Met. and Min. Soc., So. Africa, vol. 14, 1914, p. 361)

Deep pit (Eng.). A shaft exceeding 400 or 500 yards in depth. (Gresley)

Deep-sinker (Aust.). A tall drinking glass; also the drink it contains, so called in fanciful allusion to the shaft of a mine. (Webster)

Deep-well pump. A pump for oil wells, etc. (Standard)

Deficient coal (Ark.) Coal more difficult to mine than the standard, and for which the miners are paid an extra price. (Steel)

Deficient place (Aust.). A working place in which men cannot make fair average wages, and for which they are given extra pay. (Power)

Definite proportions law. One of the fundamental chemical laws that a chemical compound always contains the same elements in the same proportions by weight (Liddell). *Compare* Dalton's law.

Deflagrate. To burn; burst into flame; specifically to burn rapidly, with a sudden evolution of flame and vapor, as a mixture of charcoal and niter thrown into a red-hot crucible. (Century)

Deflagrating mixture. Combustible mixtures generally made with niter, the oxygen of which is the active ingredient in promoting their combustion. (Century)

Deflagration globe. A large glass globe for deflagration experiments, as burning phosphorous in oxygen. (Webster)

Deflagration spoon. A spoon with a long vertical handle, used in deflagration experiments. (Webster)

Deflation. The removal of loose material by the wind, leaving the rocks bare to the continuous attack of the weather. (Webster)

Deflection angle. In railroad surveying, the angle formed at any point of a curve between the tangent and a chord of 100 feet, and is, therefore, one half the degree of curve.

Deflocculating agent. An agent which produces deflocculation, as for example the alkalis in certain concentration, and which therefore hinders settling. (Eng. and Min. Jour., vol. 101, p. 431)

Deflocculation. A relative term opposed to flocculation, *which see.*

Deformation of rocks. 1. Restrictedly, distortion of rock masses by pressure, evidenced by foliation, mutual indentation of pebbles in conglomerate, distortion of fossils, stylolites, etc. (Standard)
2. Any change in the original shape of rock masses. Folding and faulting are common modes of deformation. (Ransome)

Degradation. The general lowering of the surface of the land by erosive processes, especially by the removal of material through erosion and transportation by flowing water. (La Forge)

Degrade. To wear down by erosion. (Webster)

Degree. A division, space, or interval marked on a mathematical or other instrument, as on a thermometer. (Webster)

Degree of curve. In railroad surveying, that angle subtended, at the center of curvature, by a chord of 100 feet. It is twice the deflection angle.

Dehne filter press. A standard plate-and-frame filter press. (Liddell)

Dehydrate. To render free from water. (Webster)

Deil (Scot.). A tool for unscrewing broken rods in a bore hole. (Barrowman)

Deister table. A riffled table used in ore dressing in which the angle between the line of termination of the riffles and the direction of motion is not so acute as in the Wilfley. It is also wider and shorter. The top is rhomboidal. (Liddell)

Dejar respaldado (Peru). To leave valuable ore in the wall-rock. (Dwight)

Delay electric blasting-cap. A detonating device with a delay element between the priming and detonating composition. It detonates about one or two seconds after the electric current has passed through the bridge. They are made in two kinds—first and second delay—and are used in connection with regular, waterproof or submarine electric blasting-caps for blasting in tunnels, shafts, etc., where it is desirable to have charges fired in succession without the necessity of the blaster returning between shots. (Du Pont)

Delay electric-igniter. An electrical device using fuse as the delay element by which it is possible with the use of a blasting cap on each fuse to detonate a number of charges in succession. (Du Pont)

Delessite. A chloritic mineral of scaly or short fibrous appearance filling cavities or seams in basic igneous rocks. (Dana)

Delf. 1. (Forest of Dean, Lanc.) A vein, seam, or bed of coal or ironstone. (Gresley)
2. (Eng. and Scot.) A thing which has been dug; a mine; a quarry; a pit. (Webster)

Delfman (Eng.). A miner or workman in a stone quarry. (Webster)

Deliquescent. Capable of becoming liquid by the absorption of water from the air. (Standard)

Delivery drift (Eng.). A drift or adit driven from low ground into the shaft to receive water pumped from a lower level. Also called Off-take drift. (G. C. Greenwell)

Dellenite. A name proposed by Brögger for an intermediate group of effusive rocks, between the dacites and the liparites (rhyolites). The name is derived from Dellen, Helsingland, Sweden. *Compare* Toscanite. (Kemp)

Delprat method. *See* Overhand stoping.

Delprat process. *See* Potter-Delprat process.

Delta. An alluvial deposit at the mouth of a river (Webster). Usually more or less triangular in form.

Deltafication. The process of forming a delta at the mouth of a river. (Century)

Deltaic. 1. Pertaining to or like a delta. 2. Having or forming a delta. (Century)

Deltaic deposits. Sedimentary deposits laid down in a river delta. (Ransome)

Delta-metal. A non-rusting, copper, zinc, and iron alloy resembling Aich's-metal and sterro-metal. (Standard)

Deltoid dodecahedron. An isometric form of 12 faces, each a quadrilateral, distributed as determined by the tetrahedral type of symmetry (Dana). Sometimes called Deltohedron.

Dema (Sp.). 1. Timbers; lagging. 2. A dry-stone wall. 3. (Colom.). The side of a ground sluice. (Halse)

Demagnetize. To deprive of magnetic polarity. (Century)

Demar (Sp. Am.). To timber; to construct the sides of channels and sluices. (Lucas)

Demasía (Mex.). Unoccupied ground between two mining concessions, less than one *pertenencia* in extent. (Dwight)

Demenge process. A process of hardening the face of a steel ingot by carburizing one side in the casting mold. (Standard)

Demurrage. A charge for the detention of railway cars over a certain period allowed for loading or unloading.

Dendriform. Resembling a tree; arborescent; dentritic (Century). Said of certain minerals.

Dendrite. 1. A branching figure resembling a shrub or tree, produced on or in a mineral or rock by the crystallization of a foreign mineral, usually an oxide of manganese, as in the moss agate; also the mineral or rock so marked.
2. A crystallized arborescent form, as of gold or silver; an arborization. (Webster)

Dendritic. Branching like a tree; said of minerals, as crystallized gold.

Dendroid. Dentritic; arborescent.

Denounce (Mex.). To offer for record, legal notice of a claim for a mining concession, covering a described area, the mining rights of which are held by the government (Webster). *See also* Denuncia.

Densimeter. An apparatus for determining the specific gravity or relative density of a substance. (Standard)

Density. 1. The ratio of the mass of any volume of a substance to the mass of an equal volume of some standard substance. For liquids and solids the standard substance is water. (Webster)
2. The quality of being dense, close, or compact. 3. The quantity of electricity per unit of volume at a point in space, or the quantity of electricity per unit of area at a point on a surface. (Century)

Denudación (Sp.). Denudation or erosion. (Halse)

Denudation. 1. The washing down of surface deposits so as to lay bare underlying formations. This washing away in one place is associated with the idea of deposition in another. (Roy. Com.)
2. In geology, the same as erosion, although there has been an effort by some to restrict the term to the stripping away of overlying material from some particular rock or surface. (Ransome)

Denude. To wear away or remove overlying matter from and so expose to view, as underlying rocks. (Standard)

Denuded. In geology, rocks exposed by the action of denudation. (Century)

Denuncia (Sp.). 1. In Mexico and Spanish America, the judicial proceedings by which a person claims and secures the right to a mine which he has discovered, or one the title to which has been lost or forfeited by the neglect of the owner to work it, or by his having violated the mining ordinances. 2. A similar judicial proceeding by which waste or abandoned lands may be preëmpted. (Century)

Denunciador (Mex.). The denouncer of a mine. (Halse)

Denunciamiento (Sp.). In mining, the act of giving formal notice of a claim; also, the claim itself. (Standard)

Denunciante (Colom.). The denouncer of a mine or claim; a claimant. (Halse)

Denunciar (Sp.). To denounce. To give information that a mine is forfeited for being insufficiently worked, or for a violation of some condition which imposes that penalty. This term is also applied to the giving notice of a discovery, for the purpose of registry. (Raymond)

Denuncio (Mex.). Denouncement; the act of applying for a mining concession under the old mining laws. (Dwight)

Departamento (Sp.). Department; a province, district or subdivision of a country. (Halse)

Dependiente (Mex.). An inferior officer or clerk. (Halse)

Dephlegmator, or separator. An instrument used in the refining of petroleum to arrest the oil mechanically carried over by the vapor. (Mitzakis)

Depletion. The act of emptying, reducing or exhausting, as the depletion of natural resources (Century). In mining, specifically said of ore reserves.

Deposit. 1. Anything laid down. Formerly applied to (suspended) matter left by the agency of water, but now made to include also mineral matter in any form, and precipitated by chemical or other agencies, as the ores, etc., in veins. (Winchell)
2. The term mineral deposit or ore deposit, is arbitrarily used to designate a natural occurrence of a useful mineral or ore in sufficient extent and degree of concentration to invite exploitation. (Raymond)

Deposition. 1. The process of natural accumulation of rock material, as when thrown down or collected in strata by water, wind, or volcanic action: also material thus deposited. Opposed to denudation. (Standard)
2. The precipitation of mineral matter from solution. as the *deposition* of gate, vein quartz, etc.

Depósito (Sp.). 1 A deposit, generally sedimentary; a synonym of *yacimiento; D. de metal*, an ore deposit; *D. de minerales*, a mineral deposit. 2. Cistern or tank. 3. (Mex.) An ore bin. 4. *Depositos* (Mex.). water collected in old workings. (Halse)

Depp (Derb.). The continuance of ore with depth. (Mander)

Depreciation. The loss in the value of physical property due to use. or otherwise, which cannot be made good by current repairs. (E. B. Skinner, p. 149)

Depreciation fund. A fund set aside to replace a piece of depreciable property when it is worn out. (E. B. Skinner, p. 150)

Depression. 1. A lowering, sinking or diminution. 2. The angular distance of an object beneath the horizontal plane that passes through the observer. Used in surveying. (Webster)

Deputy. 1. (No. of Eng.) A man who fixes and withdraws the timber supporting the roof of a mine, and who attends to the safety of the roof and sides, builds stopping, puts up bractticing, and looks after the safety of the miners. 2. (Mid.) An underground official who looks after general safety of a certain number of stalls (rooms) or of a district, but who does not set the timber himself

although he has to see that it is properly done. (Gresley)
3. A mine boss. (Roy)

Deputy overman (Newc.). The man who lays the plates and sets the timber for the miners, and has charge of a portion of the mine. (Min. Jour.)

Deputy surveyor; Mineral surveyor. A person appointed by the Surveyor General of the United States to make proper surveys of lode or placer mining claims, prior to the issuing of a patent. (U. S. Min. Stat., p. 577–581)

Deputy system (No. of Eng.). The plan of having all the timbering in working places performed by specially appointed deputies (Gresley). *See also* Deputy.

Derbylite. A mineral, composed of antimonate and titanate of iron, occurring in black orthorhombic crystals. (Dana)

Derbyshire spar; Derby spar. Fluorite, found abundantly in Derbyshire, Eng. (Chester). Fluorspar.

Derecho (Sp.). 1. Law; equity. 2. *Derechos;* taxes; dues; customs. (Halse)

Derivative rocks. Rocks derived by erosion or comminution from existent rocks or rock material, as a sedimentary rock and volcanic tufa. (Standard)

Derrame de veta (Sp.). Fragments of ore scattered over the surface of the country near the lode. (Lucas)

Derribar Sp.). To break ground. (Halse)

Derrick. 1. The framework or tower over a deep drill hole, such as that of an oil well, for supporting the tackle for boring, hoisting or lowering. 2. Any of various hoisting apparatus employing a tackle rigged at the end of a spar or beam. (Webster)
3. (Corn.) A digger; a miner. (Pryce)

Derrick car. A wrecking car fitted with a derrick or crane. (Webster)

Derrick crane. A crane in which the top of the post is supported by fixed stays in the rear and the jib is pivoted like the boom of a derrick. (Century)

Derricking. Operating like a derrick, as regards the raising and lowering of the jib. (Webster)

Derrocado (Mex.). A mine in which the workings have caved. (Halse)

Derrumbe. 1. (Colom.) A land slip. 2. (Peru) A small and narrow mountain pass. (Halse)

Desaguador (Sp.). A water pipe; drain. (Dwight)

Desaguar (Sp.). To drain; to pump; to unwater. (Lucas)

Desagüe (Mex.). Unwatering; mine drainage. (Dwight)

Desamparar (Sp.). To abandon, as a mine. (Halse)

Desanchar. 1. (Sp.). To undercut. 2. *D. la veta* (Mex.), to take down the soft wall of a vein and leave the lode for subsequent extraction. To gouge. (Halse)

Desaplomar (Peru). In the *patio* process, to restore mercury. (Halse)

Desarenar (Colom.). To clear away the poor sand, as in placer mining. (Lucas)

Desativar (Sp.). To free a mine from rubbish or waste. (Vel.)

Desazogadera (Sp. Am.). A receptacle for the condensed quicksilver resulting from the roasting operation. (Halse)

Desbocarse el barreno (Peru). To remain (as a drill hole) practically intact after firing. (Dwight)

Desbordar (Mex.). 1. To stope underhand. 2. To rob mine pillars. (Dwight)

Desborde (Mex.). An underhand stope. (Dwight)

Descapotar (Sp. Am.). To clear away a capping. (Lucas)

Descargadora (Mex.). A discharging tank, from which the slimes are run off last. (Egleston)

Descargar (Sp.). 1. Literally, to unload; *D. un horno*, to tear down a furnace. (Dwight)
2. (Colom.) To take away stones in order to facilitate the washing of gold-bearing sands. (Halse)

Descargue (Mex.). The last ingot reduced in a smelting furnace. (Rrockwell)

Descension-theory. The theory that the material in veins entered from above. (Raymond)

Descloizite. A vanadate of lead and zinc, found only in the oxidized parts of veins. (U. S. Geol. Surv.)

Descogollar (Colom.). To take away the upper part of a vein. (Halse)

Descostradores (Sp.). Men employed in taking down any fragment which may remain after blasting. (Min. Jour.)

Descriptive mineralogy. That branch of mineralogy devoted to the description of the physical and chemical properties of minerals. (Century)

Descubridora (Mex.). Discovery-mine; first mine in a district, or on a mineral deposit. (Dwight)

Descubrir (Sp.). To discover, as mines. (Halse)

Desecho (Mex.). 1. The loss of mercury through chemical reactions during amalgamation. 2. Lead-dross. 3. Assay waste. (Dwight) 4. Very low-grade or poor ores. 5. Rubbish from mines; waste rock. (Halse)

Desencielar (Colom.). To work the lode between two adits. (Lucas)

Desengranar (Mex.). To throw out of gear. (Dwight)

Desenlodar (Sp.). To separate clay from any mineral or ore. (Halse)

Desert rat (West. U. S.). A prospector, especially one who works and lives in the desert, or who has spent much time in arid regions. The name is derived from a small rodent common throughout much of the Great Basin and Southwestern United States.

Desguachar (Sp. Am.). To get out the fine gravel or dirt. (Lucas)

Desiccate. To dry up; to deprive or exhaust of moisture; to preserve by drying. (Webster)

Desiccator. A short glass jar fitted with an air-tight cover and containing some desiccating substance as calcium chloride, above which is placed the material to be dried, or preserved from moisture. (Webster)

Desierto (Mex.). Desert. (Dwight)

Desiliconize. To free from silicon or any of its compounds. (Century)

Desilverization. The process of separating silver from its alloys. (Raymond)

Desilverizing kettle. A circular kettle 3 to 4 feet deep used for the desilverization of base bullion. (Hofman, p. 451)

Desistimiento (Mex.). The abandonment of a mining claim. (Dwight)

Deslave (Sp. Am.). Tailings. (Lucas)

Deslizarse el azoque (Peru). The flouring of mercury. (Dwight)

Desmenuzable (Sp.). Friable ore. (Halse)

Desmine. *See* Stilbite.

Desmontar (Colom.). To remove overburden; to strip. (Halse)

Desmonte (Colom.). The superficial layer above the auriferous gravel. (Halse)

Desmontes (Mex.). Poor ores. (Dwight)

Desmoronos (Colom.). Surface damage caused by mine workings, for which the operator has to pay damages. (Halse)

Desmorro (Mex.). Furnace barrings. (Dwight)

Desmosite. A banded contact rock developed from shales and slates by intrusions of diabase. *Compare* Spilosite and Adinole. (Kemp)

Desnivel (Mex.). Difference in a level. (Dwight)

Despachardores (Mex.). Men employed in filling *mantas* with ore. (Halse)

Despacho (Mex.). 1. An office. 2. A commission, warrant, or patent. (Halse)

Despajar (Mex.). To remove waste rock by concentration. (Dwight)

Despaje (Mex.). Waste from a concentration plant. (Dwight)

Despensa (Mex.). 1. A storeroom for provisions. 2. A well-secured room for keeping rich ore. (Halse)

Desperdicios (Sp.). Tailings. (Lucas)

Despilado (Sp.). 1. The removing of pillars. (Halse)

Despilar; Despilarar (Mex.). To rob a mine; to remove pillars. (Halse)

Desplatar (Sp.). To desilverize. (Lucas)

Despoblado (Mex.). Ore with much gangue. (Dwight)

Despoblar (Mex.). To suspend mining work. (Dwight)

Despueble (Sp.). Abandoning the mine, or failure to keep the proper number of men at work. (Min. Jour.)

Desquinchar (Peru). To take down the walls of a lode (Halse). *See* Ensanchar, 2.

Destajero (Mex.). A contractor for piecework. (Dwight)

Destajo. 1. (Mex.) A contract; piecework as distinguished from timework. (Dwight)
2. (Peru) An open cut. (Halse)

Destrancar (Colom.). To remove obstacles which prevent the unwatering of mines. (Halse)

Destructional. Pertaining to destruction or shaped by destructive forces, as in geology, a plain which has been formed by erosion. (Standard)

Destructive distillation. The process of heating an organic compound in a closed vessel, without access of air, and collecting the products (Nicholls). A process of distillation in which hydrocarbon molecules are broken down. Thus illuminating gas is a product of the destructive distillation of coal. Also called Dry distillation, and Cracking.

Desuing (Corn.). *See* Dissuing.

Desulphurization. The removal of sulphur from sulphide ores. (Raymond)

Desulphurize. To free from sulphur; to remove the sulphur from an ore or mineral by some suitable process, as by roasting. (Century)

Desvolcanarse (Colom.). To be covered by a landslide; to be destroyed or demolished. (Halse)

Detaching hook. A self-acting mechanical contrivance for setting free a winding rope from a cage when the latter is raised beyond a certain point in the headgear; the rope being released, the cage remains suspended in the frame. (Steel)

Determinative mineralogy. That branch of mineralogy which comprises the determination of the nature, composition, and classification of minerals, by means of physical tests, blowpipe or wet analyses, and the examination of the crystallographic and the optic properties. (La Forge)

Detonador (Sp.). Fulminating cap; detonator. (Lucas)

Detonate. 1. To cause to explode with a sudden loud report. 2. To explode suddenly with a loud report. (Standard)

Detonating fuse. A fuse consisting of high explosive that fires the charge without the assistance of any other detonator. (Bowles)

Detonating gas. A mixture of two volumes of hydrogen and one volume of oxygen which explodes with a loud report upon ignition. (Webster)

Detonating powder. Any powder or solid substance, which when heated or struck explodes with violence and a loud report. (Webster)

Detonating primer. A primer exploded by a fuse, used to fire high explosives. (Webster)

Detonation. The very sudden change of unstable substances from a solid or liquid to the gaseous state with the evolution of great heat and accompanied by a sudden report.

Detonator. A term used to include blasting caps, or any device used for detonating a high explosive (Du Pont). An exploder, percussion cap, or primer.

Detonator tube. A eudiometer fitted for making explosions. (Webster)

Detrital rock. A rock made up of the débris of other rock. (Century)

Detritus. A general name for incoherent sediments, produced by the wear and tear of rocks through the various geological agencies. The name is from the Latin for "Worn." Rock waste. (Kemp)

Deuterogenic. Formed from protogenic rocks. (Standard)

Development. 1. A geological term, applied to those progressive changes in fossil genera, and species, which have followed one another during the deposition of the strata of the earth. (Roberts)

2. Work done in a mine to open up ore bodies, as sinking shafts and driving levels, etc. (Skinner). Sometimes used synonomously with "annual assessment" work.

Devil (Aust.). An automatic arrangement for detaching a set of skips from the main-and-tail rope haulage system. (Power)

Devil's dice. Cubes of limonite, pseudomorph after pyrite. (Power)

Devitrification. The process by which glassy rocks break up into definite minerals. The latter are usually excessively minute but are chiefly quartz and feldspar (Kemp). The change from a glassy to a crystaline state after solidification.

Devonian. In the ordinarily accepted classification, the fourth in order of age of the periods comprised in the Paleozoic era, following the Silurian and succeeded by the Carboniferous. Also the system of strata deposited at that time (La Forge). Sometimes called the Age of fishes.

Dewar-Redwood process. A method for cracking petroleum (1899) by the use of a suitable still and a condenser in free communication with each other, *i. e.*, without any valve between them, the space in the still and condenser not occupied with liquid being charged with air, carbonic acid gas, or other gas, under the required pressure and the condenser being provided with a regulated outlet for the condensed liquid. A full description of the process is contained in Sir Boverton Redwood's standard work on petroleum. (Mitzakis)

Deweylite. An amorphous, resinous, whitish to brown, hydrous magnesian silicate mineral, near serpentine, but with more water; formula perhaps, $4MgO.3SiO_2.6H_2O$. (Dana)

Dezuing. *See* Zur, *also* Dissuing.

Diabantite. A chloritic mineral found filling cavities in basic eruptive rocks, like basalt and diabase. (Century)

Diabasa (Mex.). Diabase. (Dwight)

Diabase. A basic igneous rock usually occurring in dikes or intrusive sheets, and composed essentially of plagioclase feldspar and augite with small quantities of magnetite and apatite. The plagioclase forms lath-shaped crystals lying in all directions among the dark irregular augite grains, giving rise to the peculiar diabasic or ophitic texture, which is a distinctive feature in the coarser-grained occurrences (U. S. Geol. Surv.)
Diabase is often used as a prefix for double names, as diabase-aphanite, diabase-gabbro, etc. (Kemp)

Diabase-porphyrite. A porphyrite whose groundmass is finely crystalline diabase, and whose phenocrysts are prevailingly plagioclase. It is contrasted with augite-porphyrite, whose phenocrysts are prevailingly augite. (Kemp)

Diablo (Mex.). 1. Rail-bender. 2. Kind of barrow used for moving heavy weights. (Dwight)
3. (Colom.) A lifting jack or screw. (Halse)

Diaclase. In geology, a line of rectangular fracture; a term applied by Daubrée to explain the fact that the lines of weakness in the earth's surface are perpendicular to one another. (Standard)

Diaclinal. Crossing a fold, as a diaclinal river. (Webster)

Diadochite. A hydrated ferric phosphate and sulphate mineral, brown or yellowish in color. (Dana)

Diagenesis. Recombination or rearrangement, resulting in a new product, as in the formation of larger crystalline grains from smaller ones. (Webster)

Diagonal joints. Joints diagonal to the direction of cleavage. (C. and M. M. P.)

Diagonal staple (No. of Eng.). A shallow pit sunk in a sloping or diagonal direction at the back of the main beam of a pumping engine and in which the lever beam works. (Gresley)

Diagonal stratification. Same as False bedding, Current bedding, and *also* Cross-bedding.

Diagram factor. A numerical coefficient by which the area of a theoretical indicator diagram must be multiplied to approximate the diagram obtained from the indicator. (Webster)

Dial. 1. A compass fitted with sights, spirit levels, and vernier, for making underground surveys. 2. To survey with a dial and chain. *See* Dialing. (Gresley)

Dialing; Dialling. The operation of making a survey with the dial. (Gresley)

Diallage. The variety of monoclinic pyroxene which, in addition to the prismatic cleavages, has others parallel to the vertical pinacoids. Used also as a prefix to many rocks containing the mineral. (Kemp)

Dialysis. The separation of crystalloids and colloids in solution, by means of their unequal diffusion through certain natural or artificial membranes. (Webster)

Diamagnetic. Possessing or pertaining to the property of being repelled by a magnet and of tending to take a position at right angles to the magnetic force. (Webster)

Diamant. A Middle English form of spelling diamond.

Diamante (Sp.). Diamond; *D. en bruto*, a rough diamond; *D. negro*, a bort. (Halse)

Diamond. 1. A very hard, native crystallized form of carbon, C. When pure and clear it is used as a gem (U. S. Geol. Surv.). Although commonly colorless, is sometimes green, yellow, brown, blue, or black. *See also* Bort.

2. (Aust.). A pointed wooden or iron arrangement placed between rails, just before a curve, where skips are liable to be derailed, so as to enable them to mount the rails again. If the skips are traveling in one direction only, the diamond is pointed at one end, if traveling backwards and forwards on the same rails both ends are pointed. (Power)

Diamond chisel. A cutting chisel having a diamond or V-shaped point. (Gresley)

Diamond cutting. One of the three processes by which diamonds are prepared for use as ornaments or in the arts, the others being diamond cleaving and diamond polishing. (Century)

Diamond drill. A form of rotary rock drill in which the work is done by abrasion instead of percussion, black diamonds (borts) being set in the head of the boring tool (Raymond). Used in prospecting and development work where a core is desired.

Diamond dust; Diamond powder. A fine dust produced in diamond cutting by the abrasion of two stones against each other. (Century)

Diamond groove. A groove of V-section in a roll. (Raymond)

Diamond hitch. An interlacing of ropes forming a diamond on top of the pack. Used in tying a pack on an animal. (Webster)

Diamond saw. A circular disc having diamonds (or diamond dust) set in its cutting edge. It is employed for sawing stone.

Diamond spar. Corundum. (Power)

Diamond system (Eng.). Boring or prospecting for coal or ore with diamond drills.

Diamond tin. Large bright crystals of cassiterite. (Power)

Diamond wheel. A wheel made of metal, as copper or iron, and charged with diamond powder and oil, used in grinding gems.

Diaphaneity. The state or quality of allowing light to pass through. Used in describing mineral. *Compare* Transparent, Semi-transparent, Translucent, and Opaque. (Dana)

Diaphanous. Allowing light to show or shine through. (Webster)

Diaphorite. A mineral like freieslebenite in composition, $(Pb.Ag_2)_5Sb_4S_{11}$, or $5(Pb,Ag_2)S.2Sb_2S_3$, but orthorhombic in form. (Dana)

Diario (Colom.). 1. The daily quantity of amalgam produced by a mill. 2. The mill diary or record of hours, tonnage, etc. (Halse)

Diaschistic. Derived from a larger, parent igneous mass, but differing therefrom in composition; said of certain dikes associated with igneous intrusions. Contrasted with Aschistic. (La Forge)

Diaspore. An aluminum hydroxide mineral, $Al_2O_3.H_2O$. (Dana)

Diastatic. Pertaining or due to the movements of the forces which produce deformation of the earth's surface. (Standard)

Diastrophe. In geology, an event characterized by a deformation of the earth's crust. (Standard)

Diastrophism. The process or processes by which the crust of the earth is deformed, producing continents and ocean basins, plateaus and mountains, flexures and folds of strata, and faults. Also, the results of these processes. (Webster)

Diathermic. Allowing a free passage of heat. (Webster)

Diatom. A minute plant which is provided with a siliceous envelope. (Duryeé)

Diatomaceous earth. A friable earthy deposit composed of nearly pure silica and consisting essentially of the frustules of the microscopic plants called diatoms; diatomite. Sometimes wrongly called infusorial earth, which *see*. (La Forge)

Diatomic. Consisting of two atoms to the molecule. Bivalent. Having two replaceable atoms or radicals. (Webster)

Diatomite (Eng.). The silica of diatoms dried to a fine powder and used in the manufacture of dynamite, pottery glaze, etc. (Standard.) *See also* Infusorial earth.

Diatomous. Having a single distinct diagonal cleavage, as in certain crystals. (Webster)

Diatom prism. A prism attached to a microscope to give the oblique illumination for observing very fine markings. (Standard)

Diatreme. A vent occurring in a surface fissure in volcanic regions. (Daly, p. 252)

Dibhole (Eng.). The lowest part of a mine, into which the water drains (Standard). A sump.

Dibujo (Sp.). A drawing; design or draft. (Halse)

Dice coal (Leic.). Layers in a coal seam which naturally break or split into small pieces resembling dice. (Gresley)

Dice mineral. A Wisconsin term for small cubic galena. (Power)

Dicey lode (Corn.). A lode possessing many horizontal joints. (Power)

Dichroism; Pleochroism. The property of exhibiting different colors in different directions by transmitted light. (Dana)

Dichroite. A hydrated, aluminum-magnesium-iron silicate mineral, $H_2(Mg, Fe)_4Al_8Si_{10}O_{37}$. Synonymous with Iolite and Cordietrite.

Dichromic. Containing two atoms or equivalents of chromium. (Webster)

Dichroscope. An instrument for observing pleochroism in minerals. (A. F. Rogers)

Dickinsonite. A green, hydrous phosphate mineral, chiefly of manganese, iron and sodium. (Dana)

Diclinic. A crystal having two of the three axes inclined to the third and perpendicular to each other. (Standard)

Didymium. A supposed element announced by Mosander in 1841. The most recent investigations have shown that it is a mixture of two elements, neodymium and praseodymium. (Century)

Die. 1. A piece of hard iron, placed in a mortar to receive the blow of a stamp, or in a pan to receive the friction of the muller. Between the die and the stamp or muller the ore is crushed (Raymond). At Clunes, Victoria, it is called the Stamp bed. 2. A tool used for cutting threads, usually at one passage. (Nat. Tube Co.)

Die-earth (Eng.). A local term at Coalbrook Dale for the Wenlock shale, because this stratum lies beneath all the mining ground of the district—the minerals "dying out," as it were, at this stratum. (Page)

Diehl process. A modification of the cyanide process in which cyanogen bromide is added to the leaching solution. (Liddell)

Diente. 1. (Sp.). A tooth or cog; *D. de murciélago*, stibnite in cavities in veins; *D. de perro* (Colom.), a crystallized and opaque quartz occurring in geodes. (Halse)
2. (Mex.) Binding stone in Mexican masonry. *See* Tizón. (Dwight)

Diesel engine. An internal combustion engine in which only air is drawn in by the suction stroke, and the air is so highly compressed that the heat generated ignites the fuel which is automatically sprayed into the cylinder under high pressure. (Webster)

Die-stock. A contrivance for holding dies used in screw cutting (Century). *See* Die, 2.

Difference of potential. The difference in electrical pressure existing between any two points in an electrical system or between any point of such a system and the earth, as determined by a voltmeter. (Clark)

Differential flotation. The floating of one flotative mineral only, when there are others present which are ordinarily flotative. *See* Selective flotation and Preferential flotation. (O. C. Ralston, U. S. Bur. Mines)

Differential pumping engine. A compound direct-acting pumping engine, generally of the horizontal class. (Gresley)

Differentiation. The process or processes whereby cooling magma separates into rocks of different kinds, usually connected by gradations. (Ransome)

Diffraction. A modification which light undergoes in passing by the edges of opaque bodies or through narrow slits or in being reflected from ruled surfaces, in which the rays appear to be deflected producing fringes of parallel light and dark or colored bands. (Webster)

Diffusate. In chemistry, material which, in the process of dialysis, has diffused or passed through the separating membrane. (Webster)

Dig. 1. To mine coal; applied to bituminous workings (Chance). *See also* Gouge, 3.
2. To excavate; make a passage into or through, or remove by taking away material. (Century)

Digger. 1. One who digs, as a miner; a seeker of gold. A tool for digging. (Webster)
2. A man who is paid by the ton, for coal produced. A miner in the stricter sense. Originally the digger mined or undermined the coal. The term is now applied to the man who merely shoots out the coal. (Steel)
3. A machine for removing coal from the bed of streams, the coal having washed down from collieries of culm banks above. (C. and M. M. P.)

Digging. 1. Mining operations in coal or other minerals. (Hargis)
2. Region; locality; quarters; lodging (Webster). *See also* Diggings.

Diggings. Applicable to all mineral deposits and mining camps, but in usage in the United States applied to placer mining only (Raymond). *See also* Bar-Diggings.

Dihedral. Having two sides, as a figure; having two faces, as a crystal. (Century)

Dihydrite. A dark emerald-green, hydrous copper phosphate, $Cu_3P_2O_8.2Cu(OH)_2$, mineral, crystallizing in the monoclinic system. (Dana)

Dike. 1. A long and relatively thin body of igneous rock, which, while in a state of fusion, has entered a fissure in older rocks and has there chilled and solidified (Century). Not to be confounded with vein. Also spelled Dyke. 2. A channel or ditch made for water by digging. 3. A bank of earth or stone; a levee. (Webster)

Dikelet. A small offshoot or apophysis from a dike. (Standard)

Dillue (Corn.). To sort (tin ore) by washing in a hand sieve. (Webster)

Dilluer (Corn.). A fine hair sieve for tin ore. (Century)

Dilluing; Dilleughing (Corn.). An operation performed in tin dressing upon the slimes of a certain part of the process. It is like the operation of panning, only performed with a sieve having a close haircloth bottom, and in a kieve of water which receives the tailings of the process. (Raymond)

Dilly. 1. (No. of Eng.) A counterbalance mounted upon two pairs of tram wheels by means of which the empty tubs are carried up an underground incline of a greater inclination than 1 in 3. (Gresley). A short self-acting incline where one or two tubs are run at a time. (C. and M. M. P.)
2. Any of various vehicles, as a light wagon, truck, water cart, etc. (Webster)

Dilly boy. One who rides a dilly or attends it.

Dilsh (Wales). Inferior coal in a thin stratum; culm. (Gresley)

Diluent. That which dilutes, or makes more fluid; a fluid that weakens the strength or consistence of another fluid upon mixture. (Century)

Diluir (Sp.). To dilute. (Dwight)

Diluvial. 1. Pertaining to floods. 2. Related to or consisting of diluvium. (Century)

Diluvium. 1. Sand, gravel, clay, etc., in superficial deposits. *See* Drift, 6. According to some authors, alluvium is the effect of the ordinary, and diluvium of the extraordinary action of water. The latter term is now passing out of use as not precise, and more specific names for the different kinds of material are substituted. (Raymond)
2. A name formerly applied to the unsorted and sorted deposits of the Glacial period, as contrasted with the later water-sorted alluvium. *Compare* Alluvium. (Kemp)

Dimension stone. Stone that is quarried or cut in accordance with required dimensions. (Ries)

Dimension work. Masonry consisting of stones whose dimensions are fixed by specification. (Century)

Dimetian rock. A granitoid and schistose rock, found in Wales lower than the Arvonian. (Standard)

Dimorfo (Sp.). Dimorphous. (Dwight)

Dimorphism. Crystallization in two independent forms of the same chemical compound, as of calcium carbonate occurring as calcite and aragonite. (Webster)

Dimorphite. An orange-yellow arsenic sulphide mineral that is obtained as a volcanic product, and is closely related to orpiment. (Standard)

Dinamita (Sp.). Dynamite. (Dwight)

Dinamo (Sp.). Dynamo. (Dwight)

Dinantian. In the usage of many European authorities, the oldest of the three series of strata comprised in the Carboniferous system in Europe; Lower Carboniferous. Equivalent to the Mississippian of North America. Also the corresponding epoch of geologic time. (La Forge)

Dinas brick. A refractory brick, almost entirely composed of silica from the Dinas clay in the Vale of Neath, England. (Raymond)

Dineral (Sp.). A standard of weight equal to 288 grains, used in assaying. (Halse)

Dinero (Sp.). 1. Money. 2. A standard weight of silver, the twelfth part of a *dineral*, and equal to 24 grains. (Halse)

Dingle (Eng.). A narrow valley between hills. (Humble)

Ding's magnetic separator. An ore separator on which the material is fed upward by a vibrating conveyor and passes through successive zones of magnetic separation. These zones are covered by the rims of rotating wheels which carry secondary magnets. These carry the magnetic particles out of the fields, are demagnetized, and drop the concentrate. (Liddell)

Dinite. An inodorous, tasteless, fragile mineral having the appearance of ice, but with a yellow tinge, and very soluble in ether and carbon disulphide; it was found in a lignite deposit at Lunigiana, Tuscany. (Bacon)

Dinky. A small locomotive used to move cars in and about mines and quarries. (Bowles)

Dint (Mid.). *See* Bate, 1.

Diopside. A natural calcium-magnesium silicate, $CaMg(SiO_3)_2$. A variety of pyroxene. (U. S. Geol. Surv.)

Dioptase. A hydrous silicate mineral of copper, H_2CuSiO_4. (Dana)

Diorita (Sp.). Diorite. (Dwight)

Diorite. A granitoid rock composed essentially of hornblende and feldspar which is mostly or wholly plagioclase, with accessory biotite and (or) augite. Minute grains of magnetite and titanite may be visible. Quartz may be present in considerable amount, in which case the rock is called quartz diorite. Quartz diorites grade into tonalites and granodiorites. (U. S. Geol. Surv.)

Diorite-porphyrite. A porphyrite whose groundmass is a finely crystalline diorite, and whose phenocrysts are prevailingly plagioclase. It is contrasted with hornblende-porphyrite, whose phenocrysts are prevailingly hornblende. (Kemp)

Dip. 1. The angle at which beds or strata are inclined from the horizontal, while underlie is the angle formed between a vein and a vertical line. The first is a geologist's term, the second a miner's. (Roy. Com.)
2. To slope downward from the surface. 3. (Eng.) A heading or other underground way driven to the deep. 4. A dip entry, dip room, etc. A heading driven to the full rise in steep mines. (Gresley)

Dip compass. *See* Dipping Compass.

Dip cut. In cutting out blocks of stone, the cut which follows a line at right angles to the strike. (Bowles)

Dip entry. An entry driven down hill so that water will stand at the face. If it is driven directly down a steep dip it becomes a slope (Steel). *See also* Entry; *also* Slope.

Dip fault. *See* Fault.

Dip-head. A heading driven downward on the dip of a coal seam. (Webster)

Dip-head level. A mine level connecting an engine-shaft (hoisting shaft) with the rooms or chambers (Standard). The main level, drift, or slope.

Dip joint. A vertical joint about parallel with the direction of the cleavage dip (C. and M. M. P.). *See also* Dip slip.

Dip needle. *See* Dipping compass.

Dippa (Corn.). A small pit sunk on a lode to catch water; a pit sunk on a bunch ore. (Duryee)

Dipper (No. of Eng.). A downthrow or a fault. (Gresley)

Dipper dredge. A dredge in which the material excavated is lifted by a single bucket on the end of an arm, in the same manner as in the ordinary steam shovel. (Weatherbe)

Dipping. 1. (Wales). Same as Dip, 2. In Scotland it is called a dook. 3. In ceramics, the process of coating a coarse clay body with enamel or slip of a fine quality by plunging the vessel into the liquid material for coating. (Century)

Dipping compass. A compass having the needle fixed to swing in a vertical plane, so it can be readily deflected by magnetic rocks. (Weed)

Dipping needle. *See* Dipping compass.

Dipple (Eng.). Same as Dip, 3.

Dip shift. The component of the shift (or slip) parallel with the fault dip. (Lindgren, p. 122)

Dip side; Laigh side (Scot.). The lowest side of a room or wall. (Barrowman)

Dip slip. The component of the slip parallel with the fault dip, or its projection on a line in the fault surface perpendicular to the fault strike. (Lindgren, p. 121)

Dip-slip fault. *See* Fault.

Dip slope. *See* Escarpment.

Dip split. A current of intake air directed into or down a dip. (Gresley)

Dip switch (Ark.). A slant or piece of track connecting the back entry or air course of a dipping coal seam with the main entry or gangway. (Steel)

Dip throw. The component of the slip measured parallel with the dip of the strata. (Lindgren, p. 124)

Diputación de minería (Mex.). A local board, formerly elected in each district for the administration of all matters relating to the mining industry, abolished by the Law of 1892 and substituted by *agentes*. (Halse)

Dipyr. A variety of scapolite, often used as a prefix to the names of rocks that contain the mineral. (Kemp)

Dique (Sp.). 1. A mineral dike. 2. Dam. (Dwight)

Dirección (Sp.). Course; direction; strike. (Halse)

Direct draft. Having a single direct flue; applied to steam boilers. (Century)

Direct firing. The combustion of coal effected by burning directly on a grate. (Ingalls, p. 268)

Direction of strata. The strike, or line of bearing. (Hitchcock)

Direct process. A process which yields metal fit for use by a single process from the ore. The direct process for malleable iron is an ancient method, which has been to a considerable extent replaced by the indirect process in which cast iron is first made. (Webster)

Dirt (Eng.). 1. Clay, bind, or other useless waste produced in mining. 2. (No. of Eng.) Foul air or fire damp. (Gresley)
3. (Wisconsin zinc district.) Ore and waste as broken in the mines. 4. Auriferous gravel, wash, or pay dirt. (Skinner)
5. (Joplin, Mo.) Crude lead-zinc ore. The concentrate is called ore.

Dirt band. 1. A band of débris-filled ice alternating with clearer ice in a glacier. 2. *See also* Dirt bed, 1. (Oldham)

Dirt bed (or band). 1. (Eng.). A thin stratum of soft, earthy material interbedded with coal seams. (Gresley)
2. Old soil in which trees, fragments of timber, and numerous plants are found. (Oldham)

Dirt bing (Scot.). A débris heap (Barrowman). A waste heap.

Dirt fault. An area of crushed coal, or a partial or total replacement of the coal by a soft carbonaceous shale or slate with more or less coal running through the mass in thin stringers (Chance). Not a true fault.

Dirt scraper. A road scraper or a grading shovel, used in leveling or grading ground. (Century)

Dirt scratcher. A person whose duty it is to take down loose rock, clear away dirt, and perform such other like work as requires no special skill or experience. (Kellyville Coal Co. *v.* Humble, 87 Illinois App., p. 438)

Dirty coal (Scot.). A coal seam with thick partings of blaes or fire clay; a very ashy coal. (Barrowman)

Disc. *See* Tappet.

Discharge clack (Scot.). The delivery valve of a pump. (Barrowman)

Discharge, or issue. The expulsion of the pulp from a stamp-mill mortar. It is also used to designate the distance from the bottom of the screen to the top of the die, because this figure determines, more than any any other factor, the rapidity of the expulsion of the pulp. (Rickard)

Discission, space of. According to Posepny, a space or opening in or between rocks, formed by deformation of the rocks. Contrasted with Space of dissolution. (La Forge)

Discoidal. Having the form of a disk, quoit, or ordinary biscuit. (Sloan)

Discolith. A discoidal coccolith. (Webster)

Discordance. In geology, a lack of parallelism between contiguous strata. (Standard). An unconformity.

Discordant injection. An igneous mass injected across bedding planes. (Daly, p. 63)

Discordant stratification. Unconformable stratification (Hitchcock). *See also* Discordance.

Discovery (Pac.). The first finding of the mineral deposit in place upon a mining claim. A discovery is necessary before the location can be held by a valid title. The opening in which it is made is called Discovery - shaft, Discovery - tunnel, etc (Raymond). *See* Mine, 6, for "Discovery of a mine."

The finding of mineral in place as distinguished from float rock constitutes a discovery. (Book *v.* Justice Mining Co., 58 Fed. Rept., p. 120; Nevada Sierra Oil Co. *v.* Home Oil Co., 98 Fed. Rept., p. 676; Shoshone Mining Co. *v.* Rutter, 87 Fed. Rept., p. 807; Migeon *v.* Montana, etc., R. Co., 77 Fed Rept., p. 249; McShane *v.* Kenkle, 18 Montana, p. 208; 44 Pacific, p. 979; U. S. Min. Stat., p. 23; pp. 66–70)

Discovery claim. The first claim in which a mineral deposit is found, and when this is within a gulch or on a stream the claims are simply marked or numbered from the discovery claim either by letters or figures up or down the gulch or stream. Smith *v.* Cascaden, 148 Fed. Rept., p. 793)

Disfrute (Sp.). Exploitation of a mine; *Obras de D.*, stopes, etc.

Dish. 1. (Derb.) A rectangular box about 28 inches long, 4 inches deep, and 6 inches wide in which ore is measured. 2. (Corn.) A measure holding one gallon, used for tin ore dressed ready for the smelter. (Century)
3. (Corn.) The landowner's or landlord's part of the ore. (Raymond)
4. (No. of Eng.) The length or portion of an underground engine plane nearest to the pit bottom, upon which the empty tubs (cars) stand before being drawn inbye. (Gresley)

Dish plate (Eng.). A plate or rail concaved to receive the front wheels of a tub to secure it while emptying. (Webster)

Disintegration. The breaking asunder and crumbling away of a rock, due to the action of moisture, heat, frost, air, and the internal chemical reaction of the component parts of rocks when acted upon by these surface influences. (Roy. Com.)

Disintegrator. A machine for breaking coal into powder.

Disk. 1. A flat circular plate as of metal or paper (Webster)
2. The protecting plate or collar on a stamp shaft by which the cam lifts the shaft (Davies). *See also* Tappet.

Dislocación (Sp.). A fault as, in a vein. (Dwight)

Dislocar (Sp.). To displace; to fault. (Halse)

Dislocation. A shifting of the relative position of the rock on either side of a crack, or break. It may be up, down, or to one side. Equivalent to slip, slide, fault, throw, heave, upthrow, downthrow, trouble. (Roy. Com.)

Dispersion. In optical mineralogy, the optical constants for different parts of the spectrum. (A. F. Rogers)

Dispersoid. A body that has been dispersed in a liquid. (Rickard)

Disphenoid. In crystallography, a solid figure contained by eight isosceles triangles. (Standard)

Displacement. 1. The word "displacement" should receive no technical meaning, but is reserved for general use; it may be applied to a relative movement of the two sides of the fault, measured in any direction, when that direction is specified; for instance, the displacement of a stratum along a drift in a mine would be the distance between the two sections of the stratum measured along the drift. The word "dislocation" will also be most useful in a general sense. (Lindgren, p. 119)
2. The displacement of an air compressor is the volume displaced by the net area of the compressor piston. (A. I. M. E., Bull. 140, p. 57)

Displacement, horizontal. A term used by Tollman to designate Strike slip, *which see.* (Lindgren, p. 121)

Displacement, normal. A term used by Tolman to designate Dip slip, *which see.* (Lindgren, p. 121)

Displacement, total. A term used by Spurr and Tolman to designate Slip, *which see.* (Lindgren, p. 121)

Disposal (Scot.). The quantity of mineral sold. (Barrowman)

Disruptive. A term applied to that kind of force exerted by an explosive that tends to shatter the rock into fragments. (Bowles)

Dissected. Cut by erosion into hills and valleys or into flat upland areas separated by valleys. Applicable especially to plains or peneplains in process of erosion after an uplift. (Ransome)

Dissection. In geology, the work of erosion in destroying the continuity of a relatively even surface by cutting ravines or valleys into it. (Ransome)

Disseminated. To be scattered or diffused through; to be permeated with. (Roy. Com.)

Disseminated deposit. *See* Disseminated ore.

Disseminated ore. Ore carrying fine particles of metallic minerals, usually sulphides, scattered through rock or gangue matter, and without genetic significance. (Lindgren, p. 68)

Dissociate. In chemistry, to resolve, through variation of some physical condition, into simpler substances that are capable of reuniting to form an original one. (Century)

Dissociation. The act or process consisting in the reversible re-solution or decomposition of substances, with complex molecules, into those with simpler ones, when produced by a variation in physical conditions; also the state resulting from such process. (Century)

Dissolution. The act or process of dissolving or breaking up. A separation into component parts. (Webster)

Dissolution, space of. According to Posepny, a space or cavity in or between rocks, formed by the dissolving away of rock material. Contrasted with Space of discission. (La Forge)

Dissolving tank. A small tank used for dissolving solid cyanide and preparing a concentrated solution. (Clennell, p. 280)

Dissuing (Corn.). Cutting out the selvage or gouge of a lode to facilitate the extraction of ore. (Raymond). *See also* Zur.

Distance blocks. Wooden blocks placed in between the main spears and the side pump rods by which the proper distance between them is adjusted. (Gresley)

Disthene. Synonym for Kyanite; sometimes used as a prefix in rock names. (Kemp)

Distillate. The product of distillation, as petroleum distillate.

Distillation. Volatilization, followed by condensation to the liquid state. (Raymond)

Distillation furnace. A reverberatory heating furnace in which the charge is contained in a closed vessel and does not come in contact with the flame. It has a combustion chamber in which the gases are burned around the retorts containing zinc ore, the retorts resting on shelves inside the chamber. (Ingalls, p. 381)

Distillation, of petroleum. The process by which heat is applied to the crude oil in order that its constituents may pass off in vapor, and by suitable arrangements subsequently collected in the form of a liquid. (Mitzakis)

Distortion. The act of distorting or twisting out of place, or out of shape. (Hitchcock)

Distributive fault. *See* Fault.

Distributor. 1. A device for distributing the charge when dumped into blast furnace. (Willcox)
2. An apparatus for distributing an electric current, either to various points in rotation, as in some motors, or along two or more lines in parallel, as in a distributing system. (Webster)

District. 1. In the States and Territories west of the Missouri (prior to 1880), a vaguely bounded and temporary division and organization made by the inhabitants of a mining region. A district has one code of mining laws, and one recorder (Raymond). Counties and county officers have practically taken the place of these cruder arangements. 2. A limited area of underground workings. (Gresley)

District rope (Aust.). A rope used for hauling skips in a district or section of a colliery. (Power)

Disturbance. The bending or faulting of a rock or stratum from its original position. (Roy. Com.)

Disturbed. Said of an orebody when lacking defined walls and settled character. (Weed)

Ditch. 1. An artificial watercourse, flume, or canal, to convey water for mining. A flume is usually of wood; a ditch, of earth. (Raymond)
2. (Leic.) To clog; to impede. (Gresley)

Ditch drain. A gutter excavated in the floor of a gangway or airway to carry the water to the sump, or out to the surface. (Chance)

Ditched top (Leic.). A coal seam which has a hard unyielding top, and is with difficulty separated from the roof, is said to have a ditched top. (Gresley)

Ditcher; Circle cutting drill. A drill mounted on a frame that rotates about a central axis. It is used to cut circular trenches for the production of large grindstones. (Bowles)

Ditching. 1. Making of ditches. (Standard)
2. The digging or making of a ditch by the use of explosives. *See also* Propagated blast. (Du Pont)

Ditching car. A car provided with derricks and scoops to excavate ditches, as in a railway cut. (Standard)

Ditching machine. An excavating machine for digging trenches. (Standard)

Ditch water. The stale or stagnant water collected in a ditch. (Century)

Ditch wiring. The method of connecting electric blasting caps in such a way that the two free ends can be connected at one end of the line of holes. (Du Pont)

Ditroite. A nephelite-syenite from Ditro in Hungary, especially rich in blue sodalite. (Kemp)

Divide; Dividing range. The watershed or height-of-land from which the heads of streams flow in opposite directions. (Roy. Com.)

Dividing slate. A stratum of slate separating two benches of a coal bed (Chance). A parting.

Divinatoria. A divining rod. (Hoo-son)

Divining rod; Dowsing rod (Corn.). A rod (most frequently of witch-hazel, and forked in shape) used, according to an old but still extant superstition, for discovering mineral veins and springs of water, and even for locating oil wells. (Raymond)

Divisional planes. Planes which divide rocks into separate masses, large or small, in the same way as joints, fissures, and backs. (Roy. Com.)

Division rope (Aust.). *See* Buffer rope.

Dizzue (Corn.). *See* Dissuing.

D-link. A flat iron bar attached to chains, and suspended by a rope from a windlass. It forms a loop in which a man sits when lowered or raised in a shaft or winze. (Gresley)

Do (doo) (Leic., Derb.). *See* Bout, 2.

Doab. 1. A dark sandy clay found in the vicinity of many Irish bogs. (Power)
2. The tract of land between two streams immediately above their confluence. 3. The confluence of two streams. (Standard)

Doak; Donk (Derb.). Flucan. (Power)

Doar (Corn.). The earth; whence ore, the earth of metals. (Pryce)

Dobby wagon (York). A cart for conveying waste material (rock, etc.) from a mine. (Gresley)

'Dobie. A term applied to the mud cap or *adobe* method of secondary blasting. *See also* Mud cap.

Dobla (Peru). Night shift (Dwight). In Chile, a double shift. (Halse)

Doblar (Sp.). To bend; to work two shifts in succession. (Dwight)

Dócil (Sp.). Docile; malleable; free milling. (Dwight)

Dock. 1. (N. Y. and Pa.) A local term among bluestone quarrymen and dealers for yards where the bluestone is unloaded as hauled from the quarries, and reloaded for transportation by rail or water to its destination. (Bowles)
2. A crib for holding loose or running rock from obstructing a track or passageway. (Sander, p. 115)

Dodd buddle. A round table resembling in operation a Wilfley table, and also like the Pinder concentrator (*which see*) except that it is convex instead of concave. The table does not revolve but has a peripheral jerking motion imparted to it circumferentially by means of a toggle movement. (Liddell)

Dodecahedral cleavage. In crystallography, cleavage parallel to the faces of the rhombic dodecahedron. (La Forge)

Dodecahedral mercury. Native amalgam containing 75 per cent mercury and 25 per cent silver. (Humble)

Dodecahedron. 1. In crystallography, an isometric form composed of twelve faces, each parallel to one axis and intersecting the other two axes at equal distances: specifically named the rhombic dodecahedron. 2. An isometric form composed of twelve faces, each parallel to one axis and intersecting the other two axes at unequal distances: Specifically named the pentagonal dodecahedron; also called Pyritohedron. (La Forge)

Dodecant. In crystallography, in the hexagonal system, one of the twelve parts into which the space about the center of symmetry is divided by the axial planes of symmetry. (La Forge)

Dodge crusher. Similar to Blake crusher, except the movable jaw is hinged at the bottom. Therefore the discharge opening is fixed, giving a more uniform product than the Blake with its discharge opening varying every stroke. (Liddell). This type of crusher gives the greatest movement on the largest lump.

Dodge pulverizer. A hexagonal barrel revolving on a horizontal axis, containing perforated die plates and screens. Pulverizing is done by steel balls inside the barrel. (Liddell)

Dog. 1. Any of various devices for holding, gripping or fastening something. 2. A drag for the wheel of a vehicle. (Webster)
3. (Scot.) A hook-headed spike for fastening down flat-bottomed rails.
4. (Scot.) A spring hook, most commonly in use for attaching a sinking bucket to the winding rope. (Barrowman)
5. An iron bar, spiked at the ends, with which timbers are held together or steadied. (Gresley)
6. A short heavy iron bar, used as a drag behind a car or trip of cars when ascending a slope to prevent them running back down the slope in case of accident. A drag. (Steel)
7. *See* Casing dog; *also* Pipe dog.

Dog-and-chain. 1. An iron lever with a chain attached by which props are withdrawn. (Gresley)
2. *See* Dog belt.

Dog belt (Mid.). A strong broad piece of leather buckled round the waist, to which a short piece of chain is attached, passing between the legs of the man drawing a dan (tub) in a mine. (Gresley)

Dog clip (Aust.). Same as Clip.

Dogger. 1. (Clev.). A bed of inferior ironstone overlying the main seam. (Gresley)
2. (Scot.). An irregular piece of stony coal in a seam. (Barrowman)

Doggy (So. Staff.). An underground superintendent, employed by the butty. (Raymond)

Doghole. A small opening from one place in a coal mine to another; smaller than a breakthrough. (Steel)

Dog hook. 1. (Eng.) A long hook for drawing an empty wagon. (Bainbridge)
2. A strong hook or wrench for separating iron boring rods. 3. An iron bar with a bent prong, used in handling logs. (Century)

Dog house. 1. (Joplin, Mo.) A washroom; dry house; change house. 2. (Joplin) A box or platform on which a can or bucket rests at the bottom of a shaft. 3. In furnace practice, *See* Forechamber.

Dog iron. A short bar of iron with both ends pointed and bent down so as to hold together two pieces of wood into which the points are driven, or one end may be bent down and pointed, while the other is formed into an eye, so that if the point be driven into a log, the other end may be used to attach a chain for hauling. (C. and M. M. P.)

Dog-on; Dug-on (Scot.). To put the hutches on the cage. This term probably had its origin in the hooking of the bucket to the rope by means of a dog hook. (Barrowman)

Dogs. 1. (Eng.) In the plural: Bits of wood at the bottom of an air door (Bainbridge). 2. *See also* Cage shuts. 3. *See* Dog, for various other meanings.

Dogstone. A rough or shaped stone used for a millstone. (Century)

Dogtooth spar. A variety of calcite with sharp-pointed crystals. (Standard)

Dogwatch (Aust.). The night shift in a colliery (Power). *See also* Graveyard shift.

Doit (Eng.). Foulness, or damp air. (Bainbridge)

Dol (Corn.). Pronounced doll. A valley or dale. (Pryce)

Dôl (Corn.). Any part or share of the adventure or tin ore, as one-eighth, one-sixteenth, one-thirty-second, or the like. (Pryce)

Dol-côth. An old field or meadow; an old valley or dale. The name of a great mine in Camborne, Cornwall. (Pryce)

Dole. A division of a parcel of ore. (Raymond). Also spelled Dôl.

Dolerita (Mex.). Dolerite. (Dwight)

Dolerite. Coarsely crystalline basalt. The word has had a somewhat variable meaning during its history and among different peoples. The English use it in place of diabase; indeed the definition given here justifies this usage, except that the characteristic texture of diabase is not essential to this definition of dolerite. But the diabasic texture is more of a microscopic feature than a megascopic. (Kemp)

Dolina. In geology, one of the natural funnel-form water tubes worn down vertically through limestone strata to their underground drainage. (Standard)

Dolly. 1. (Aust.) An instrument used for breaking and mixing clay in the puddling tub. 2. A heavy timber shod with iron, and hung from a tree or other support and formerly used for crushing quartz. (Davies) 3. To break up quartz with a piece of wood shod with iron, in order to be able to wash out the gold. (Skinner)
4. A device consisting of a small platform and a single wide roller, used as a truck for timber, etc., or when inverted as a stationary roller. (Webster)
5. (So. Staff.). A cast-iron weight used when men ride in the shaft, to act as a counter-balance to the winding engine. (Gresley)
6. A tool for sharpening machine-drill bits. (Gillette, p. 53)
7. To concentrate (ore) by use of a dolly tub. 8. A wooden disk for stirring the ore in a dolly-tub, in ore-concentration by the tossing and packing process (Standard). *See also* Dolly-tub.

Dolly tub (Corn.). A tub in which ore is washed, being agitated by a dolly, or perforated board (Raymond). *See also* Dolly, 7 and 8.

Dolomía (Mex.). Dolomite. (Dwight)

Dolomite. 1. A carbonate of calcium and magnesium, (Ca, Mg) CO_3. (U. S. Geol. Surv.)
2. A term applied to those rocks that approximate the mineral dolomite in composition. Named by Saussure, after Dolomieu, an early French geologist (Kemp). Also called Magnesian limestone. It occurs in a great many crystalline and noncrystalline forms the same as pure limestone, and among rocks of all geological ages. When the carbonate of magnesia is not present in the above proportion the rock may still be called a magnesian limestone, but not a dolomite, strictly speaking. (Roy. Com.)

Dolomite limestone. *See* Dolomite, 2.

Dolomitic. Composed of or similar to dolomite. (Century)

Dolomitization; Dolomization. The process whereby limestone becomes dolomite by the substitution of magnesium carbonate for a portion of the original calcium carbonate. If the $MgCO_3$ approximates the 45.65 per cent. of the mineral dolomite, there is great shrinkage in bulk, leading to the development of porosity and cavities up to 11 per cent. of the original rock. (Kemp)

Dome. 1. To swell upward like a dome. 2. The upper part of a furnace. 3. The vertical steam chamber on top of a boiler. 4. A crystal form composed of planes parallel to a lateral axis which meets in a horizontal edge like the roof of a house. 5. In geology, an uplift in which the beds dip outward in all directions from a center (Webster). Oil and gas pools are frequently found beneath domes.

Domeykite. A reniform and botryoidal, tin-white to steel-gray copper arsenide, Cu_3As; also found massive and disseminated. (Dana)

Domite. A more or less decomposed trachyte from the Puy de Dome in the French volcanic district of the Auvergne. The typical domite contains oligoclase and is impregnated with hematite. (Kemp)

Donk (No. of Eng.). Clay or soft earth, found in cross veins and flats (Davies). *See also* Doak.

Donkey. *See* Barney. Also used synonymously for Donkey engine, Donkey pump, Donkey hoist.

Donkey engine. A small auxiliary engine. (Webster)

Donkey hoist. An auxiliary hoisting engine operated by steam or compressed air.

Donkey pump. Any of several kinds of combined pump and steam engine. It may be operated independently of the engine: Used to supply water to a boiler, drain sumps, etc.

Donnick; Donock; Donnock. A variation of Dornick.

Dook. 1. (Scot.) A mine or roadway driven to the dip, usually the main road (Barrowman). *See also* Slope. 2. (Som.) An underground inclined plane. (Gresley)

Dook workings (Scot.). Workings below the level of the shaft bottom. (Barrowman)

Door. A movable frame or barrier of boards, or other material, usually turning on hinges or pivots, by means of which a passage way may be opened or closed (Webster). Doors are placed in air passages of mines to prevent the ventilating current from taking a short cut to the upcast shaft, and to direct the current to the working face.

Door chain (Scot.). A chain with adjusting screw by which the bucket and clack door of a pump are suspended. (Barrowman)

Door heads (Scot.). The roof or top of the workings at a shaft. (Barrowman)

Doorpiece. That portion of a lift of pumps which contains the clack or valve. (Duryee)

Doorstead. 1. (Eng.). Upright timbers in the sides of levels for supports. (Bainbridge)
2. The entrance or place of a door. (Webster)

Door stoop (Scot.). A pillar or block of mineral left around a shaft for its protection. (Barrowman)

Door tender. A boy whose duty it is to open and close a mine door before and after the passage of a train of mine cars. Also called Trapper. (Steel)

Door trapper. *See* Door tender.

Dope. An absorbent material; especially in high explosives, the sawdust, infusorial earth, mica, etc., mixed with nitroglycerin as in dynamite. (Webster)

Dopplerite. An asphalt found in New Zealand and some parts of Siberia. It resembles elaterite. (Mitzakis)

Doré. Gold and silver bullion which remains in a cupelling furnace after the lead has been oxidized and skimmed off. (Bull, 98, U. S. Bur. Mines, p. 70)

Doré bullion. Same as Base bullion. *Compare* Doré.

Dor furnace. A regenerative zinc-distillation furnace with heat-recuperating chambers at the ends of the furnace instead of beneath the combustion chamber. (Ingalls, p. 463)

Dornick; Dornock (U. S.). A small rock or bowlder; specifically a bowlder of iron ore found in limonite mines (Webster).

Dorongee (pronounced duruni) (Assam, India). A gold-washing trough. (Lock)

Dorr agitator. An agitating machine based on the thickener principle. It is essentially a Dorr classifier equipped with a central air lift. (Liddell)

Dorr classifier. A machine to diminish the amount of water required for classification by raking the heavier grains up an inclined plane against a light current of water, which washes away the lighter material. It is of the intermittent type. (Liddell)

Dose. A special charge used in a blast furnace, designed to cure furnace troubles. (Willcox)

Dott; Dott-hole. A small opening in the vein. (Raymond)

Double-acting pump. (Scot.). A pump which discharges at both forward and backward stroke. (Barrowman)

Double bank. 1. To take up a claim parallel with and adjoining another claim containing an auriferous vein or lead. 2. Working with double sets or relays of men. (Duryee)

Double-bank cages (Wales). Cages having two decks, or a multiple of two, so that decking (caging) may be performed at two levels or banks. (Gresley)

Double core-barrel drill. A core drill having an inner tube that is suspended on ball bearings and thus may remain still while the outer tube revolves. It is designed to bring out a core from a delicate material with a minimum of breaking or other damage. (Bowles)

Double crib (Eng.). Two wedging cribs placed one on the top of another. (Gresley)

Double-diamond bottom (Ark.). An arrangement of track at the shaft bottom consisting of two parallel tracks (one to each compartment of the shaft) with a double crossover track between them and repeated on each side of the shaft. (Steel)

Double-entry. 1. A pair of entries in flat or gently dipping coal so laid out that rooms can be driven from both entries; twin entries (Steel). *See also* Entry.
2. A system of ventilation by which the air current is brought into the rooms through one entry and out through a parallel entry or air course. (Steel)

Double-entry room-and-pillar mining. *See* Room-and-pillar method.

Double-handed gear (Newc.). Heavy drilling tools which require two men to use them. (Min. Jour.)

Double header. A term applied to quarry equipment consisting of two independent channeling machines on a single truck, operated by one man. (Bowles)

Double-image prism. A prism made of Iceland spar, giving two images of equal intensity, but polarized at right angles to each other. (Standard)

Double load. A charge in a bore hole separated by a quantity of inert material for the purpose of distributing the effect, or for preventing part of the charge blowing out at a seam or fissure, in which case the inert material is placed so as to include the seam. (Du Pont)

Double-men. *See* Double-pick.

Double, or Duplex hammer. A forging device striking on opposite sides, as of a bloom. (Standard)

Double-pick; Double-men (Corn.). Two men who use one pick, one during the day, and one at night, so that the pick is kept constantly at work. (Pryce)

Double-refracting spar. Same as Iceland-spar.

Double refraction. Refraction shown by certain crystals that split the incident ray into two refracted rays, polarized in perpendicular planes. (Standard)

Double-room system. *See* Room-and-pillar method.

Doubles (Som.). The repeated folds or overlaps of the coal strata in the Radstock district. (Gresley)

Double-shear steel. Converted steel that has been twice fagoted and drawn out. (Standard)

Double shift. 1. Two sets of men at work, one set relieving the other. 2. To employ two shifts of men, or to work double shift. (Steel)

Double stall (Wales). A system of working coal in which the roof falls within chambers of a limited width. (Gresley)

Double-tape fuse. Fuse of superior qualtity, or having a heavy and strong covering. (C. and M. M. P.)

Double timber (Wales). Two props and a bar placed across the tops of them to support the roof and sides of a heading. (Gresley)

Double working (No. of Eng.). Two hewers (miners) working together in the same heading. (Gresley)

Doubling. 1. A process for the treatment of antimony sulphide by fusing it with iron or other antimony containing iron, so as to form an iron sulphide, the removal of which eliminates both iron and sulphur. (Webster)
2. (Scot.) Thickening of a seam, sometimes due to its being folded over or doubled (Barrowman). *See also* Doubles.

Douce. *See* Douse.

Douglas furnace. A horizontal, revolving cylindrical furnace having a central flue. (Ingalls, p. 160)

Douglas process. *See* Hunt and Douglas process. (Raymond)

Douk; Douke; Dowk (Eng.). A soft clay found in veins. Probably derived from the Saxon *deagan*, to knead or mix with water. (Hunt)

Doup out (Scot.). To connect a drift with one formerly driven in stoop-and-room workings. (Barrowman)

Dour holing (Scot.). Difficult undercutting in hard coal or stone. (Barrowman)

Douse; Dowse. 1. To beat out or extinguish an ignited jet of fire damp (Gresley). Also spelled Douce.
2. To search for deposits of ore, for lodes, or water, by aid of the dousing or divining rod. (Century)

Dowk (No. of Eng.). A dark-colored clayey material forming part of a vein (Standard). *See also* Douk.

Down (Eng.). Underground; in the pit. (Gresley)

Down brow (Lanc.). A dip incline underground. (Gresley)

Downcast. 1. The shaft through which the fresh air is drawn or forced into the mine; the intake (Steel; Coal Run Coal Co. *v.* Jones, 127 Illinois, p. 381)
2. (Eng.) A fault which throws a coal seam downwards. *See also* Downleap. (Gresley)

Downcomer. A pipe to conduct something downward, as a pipe for leading hot gases from the top of a blast furnace downward to the regenerators, boilers, etc. (Webster). Sometimes called Downcome.

Downdraft. A downward draft as in a flue, chimney, shaft of a mine, etc. (Webster)

Down-draft kiln. A kiln in which the heat enters the chamber from the top and passes down through the ware. (Ries)

Downer (Som.). A rest or cessation from work, say half an hour, taken during a shift or turn. (Gresley)

Downfall (So. Staff.). A downthrow. (Min. Jour.)

Down holes. Drill holes that incline downward. (H. C. Hoover, p. 100)

Down-leap (Mid.). A dislocation of strata which has caused a coal seam to be aburptly cut off and brought below its original level. *See also* Downthrow. (Gresley)

Downs (Eng.). The rounded, dry, and unwooded chalk hills of Kent, Surrey, Sussex, and adjacent counties. (Page)

Downset (Scot.). A short drift to the dip. (Barrowman)

Down spouts (Lanc.). Pipes fixed down the sides of a shaft for conducting water from one level or sump to another. (Gresley)

Downthrow. Generally applied as meaning that side of a fault which has moved downward. This use is objectionable, since determinations of throw are always relative and it can rarely be told which side of the fault has moved. The term should be used with the definite understanding that it refers merely to a relative and not an absolute displacement. (Lindgren, p. 118)

Downward enrichment. A term which is synonymous with "secondary enrichment" as the latter has applied to enrichment of ore bodies by the downward percolation of waters.

Dowse. To use the dipping or divining rod, as in search of water, ore, etc. (Webster). *See* Douse.

Dowser. A divining rod for dowsing; also one who uses a divining rod (Webster). *See* Divining rod.

Dowsing rod; Dowzing rod (Som.). *See* Divining rod; *also* Dowser.

Dowson producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 305)

Dradge (Corn.). The inferior portions of ore, separated from the best ore by cobbing. (Raymond)

Dradgy lode (Eng.). A lode through which the mineral is so thinly disseminated as to be scarcely worth the expense of dressing. Such lode, ore-stuff, or stone is called dradgy. (Hunt)

Draft. 1. (Wales) Allowance coal. About 360 lbs. per week to every householder. (Gresley)
2. Act of drawing. 3. A load; the quantity drawn forward, up or out. 4. A current of any sort, as of air in a room or chimney. 5. The area of an opening or group of openings for the discharge of water, as the draft of a turbine wheel. (Webster)

Draftage. A deduction made from the gross weight of ore to allow for loss in transportation. (C. and M. M. P.)

Draft engine (Corn.). An engine used for pumping. (Min. Jour.)

Draft hole. An opening through which air is supplied to a furnace. (Century)

Drag. 1. A wooden or iron bar placed between the spokes of the wheels of trams to check their speed upon an inclined way. *See* Back stay (Gresley). A brake, or sprag.
2. An appliance to be attached to the rear of a loaded train of cars to prevent the cars from running down the incline or grade in case the cable should break. (Brookside Coal Min. Co. *v.* Hajnal, 101, Illinois App., p. 177; Brookside Coal Min. Co. *v.* Dolph, 101, Illinois App., p. 169)
3. The frictional resistance offered to a current of air in a mine. (Steel)
4. The lower part of a flask. The mold having been prepared in the two parts of the flask, the cope is put upon the drag before casting. After casting, the flask is opened by removing the cope. (Raymond)
5. Fragments of ore torn from a lode by a fault. Such fragments are scattered along the line of the fault and are usually inclosed within crushed or bracciated pieces of the rock traversed by that fault. Secondary mineralization along the fault may obscure the true character of the "drag" in which case the difference in associated minerals may prove suggestive. (Min. and Sci. Press, May 29, 1915.)
6. An iron blast-hole cleaner; drag-twist. 7. A runnerless sled for drawing rough heavy stone, etc.; a stone-boat. (Standard)

Draga (Sp.). 1. Dredge; dredger. 2. A miner's shovel. (Halse)

Dragagem; Dragaje (Port.). Dredging. (Halse)

Dragbar; Back stay (Aust.). An iron bar fastened to the back of a skip to prevent the latter running down hill in case the hauling rope breaks (Power). *See also* Drag, 2.

Drag bolt. A coupling pin. (Webster)

Drag chain. A chain to make fast a wheel of a vehicle so that the wheel will act as a drag.

Dragline scraper. A type of apparatus for the removal of soil. It consists of one or more buckets or scrapers attached to an endless cable or belt operated by a drum or sprocket wheel.

Dragon (So. Staff.) A barrel in which water is raised from a shallow shaft. (Gresley)

Dragonera (Peru). Passage of the flame into the furnace at the fire bridge. (Dwight)

Dragonite. A fabulous stone said to be obtained from the head of the flying dragon. Quartz crystals, found in gravel, which have lost their brilliancy and angular form, and consequently their identity, were formerly thought to have had the origin indicated above. (Pliny Hist., Bk. 37, p. 57)

Dragons' skin (Eng.). A familiar term among miners and quarrymen for the stems of Lepidodendron, whose rhomboidal leaf scars somewhat resemble the scales of reptiles. (Page)

Dragsman (No. of Eng.). A man employed as a pusher of tubs (cars) in underground working places. (Gresley)

Dragstaff. A pole projecting backward and downward from a vehicle, to prevent it from running backward. *See* Backstay; *also* Drag, 2.

Drag-stone mill. A mill in which ores, etc., are ground by means of a heavy stone dragged around on a circular or annular stone bed (Webster). *See* Arrastre.

Drag twist. A spiral hook at the end of a rod, for cleaning bore holes. (Raymond)

Drain. A ditch cut in a mine floor or bottom. (Roy)

Drainage basin. *See* Basin, 1.

Draught (So. Staff.) The quantity of coal hoisted in a given time (Raymond. *See* Draft, 3.

Draw. 1. (So. Staff.) Strictly speaking, the distance on the surface to which the subsidence or creep extends beyond the workings. (Gresley)
2. The effect of creep upon the pillars of a mine. 3. To draw the pillars; to mine out the pillars, or to pull or rob them after the rooms are worked out. Called Pull in Arkansas. (Steel)
4. (Scot.) The distance that mineral is hauled by trammers. (Barrowman)
5. In geology, a valley or basin. (Standard)
6. To raise ore, coal, rock, etc., to the surface; to hoist.

Draw a charge. To take a charge from a furnace. (C. and M. M. P.)

Draw bar. 1. A bar used to connect rolling stock, as a bar with a single eye at each end for coupling together a locomotive and its tender. (Webster)
2. A heavy beam under the body of a railway car and projecting at the end for coupling cars. Some arrangement for coupling is placed at the outer end, and springs at the inner end to lessen recoil in starting, coupling, etc. (Standard)

Drawer. 1. (Scot.) A man or boy who takes ore or rock from the working face to the shaft, or terminus of the horse or haulage road (Barrowman). One who pushes trams or drives a horse underground.
2. (Derb.) A man who hoists ore or rock by means of a windlass, or otherwise, from a shaft. (Hooson)

Drawhead. The head of a draw bar. (Webster)

Draw hole. An aperture in a battery through which the coal is drawn. (Chance)

Drawing. 1. Recovering the timbers, chocks, etc., from the goaves. This work is commonly performed with the use of the Dog-and-chain, *which see.* 2. Knocking away the sprags from beneath the coal after holing. 3. Raising coal, through a shaft or slope. (Gresley)
4. In hydraulic mining, throwing the water beyond the dirt to be removed and causing it to flow toward the giant (Hanks). *Compare* Goosing.

Drawing a jud. 1. (No. of Eng.) Bringing down the face of coal, by withdrawing the sprags. (Gresley)
2. *See* Jud, 4.

Drawing an entry. Removing the last of the coal from an entry. (Hargis)

Drawing engine (Eng.). A winding or hoisting engine. (Gresley)

Drawing lift. The lowest lift of a cornish pump, or that lift in which the water rises by suction (atmospheric pressure) to the point where it is forced upward by the plunger. (Century)

Drawing road (Scot.). An underground passage along which ore or coal is conveyed. (Barrowman)

Drawing small. When a winding rope, from the effects of wear and tear, has become less in diameter or in thickness from that cause, it is said to be "drawing small." (Gresley)

Draw kiln (Scot.). A lime-kiln in which the process of calcination is carried on continuously, the raw limestone and fuel being put in at the top and the lime withdrawn at the bottom. (Barrowman)

Drawlift. Same as Drawing lift.

Drawn. The condition in which an entry or room is left after all the coal has been removed. (Hargis)

Drawn clay. Clay that is shrunk or decreased in volume by burning. (Century)

Draw slate. A soft slate, shale or rock from two inches to two feet in thickness, above the coal, and which falls with the coal or soon after the coal is removed (Harr). (Lumaghi Coal Co. *v.* Grenard, 133 Illinois App., p. 30; Interstate Coal Co. *v.* Trivett, 155 Kentucky, p. 828)

Draw wood; Draw trees (Scot.). To extract and recover mine timbers. (Barrowman)

Dredge. 1. A scoop or suction apparatus, operated by power, and usually mounted on a flat-bottomed boat, for clearing out or deepening channels, harbors, etc., by taking up and removing mud or gravel from their bottoms. Extensively used in mining gold-bearing sand and gravel. For this purpose it is equipped with screening apparatus and gold-saving devices. Also called Dredging machine.
2. Inferior ore separated from the better ore by cobbing (Webster). Sometimes written Dradge.
3. Very fine mineral matter held in suspension in water. (Raymond)

Dredge boat. A boat bearing a dredging machine, especially one used in dredging river channels and in mining gold-bearing sand and gravel.

Dredger. 1. One who uses a dredge. 2. A boat employed in dredging. 3. A dredging machine. (Webster)

Dredge sump (No. of Eng.). A small reservoir at the bottom of a shaft, in which the water collects and deposits any sediments or débris. (Gresley)

Dredging. 1. The act of using a dredge. 2. The material brought up by a dredge. (Century)

Dredging machine. *See* Dredge, 1.

Dredging pump. A pump for drawing up silt, loose sand, etc., as in dredging (Standard).

Dredging tube. The large tube of a dredging machine that operates by suction for the removal of mud, sand, etc. (Standard)

Dredgy ore (Corn.). A rock impregnated with or traversed by minute veins of mineral (Min. Jour.). Also called Dradgy ore, or Drady trade.

Dreelite. A variety of barite. (Dana)

Dress. 1. To clean ore by breaking off fragments of the gangue from the valuable mineral (Whitney). *See* Ore dressing.
2. The furrowing on a millstone face. (Webster)

Dressants (Fr.). Very steep lying seams of coal, etc. (Gresley)

Dressed rocks. Same as Roches moutannées. (Standard)

Dresser. 1. (Mid.). A tool used by colliers and banksmen for splitting large lumps of coal, and for cleaning coal for the market. A nooper. (Gresley)
2. A tool or apparatus for cutting and dressing the furrows on the face of a millstone. (Century)
3. The superintendent of persons employed in picking, washing, and dressing ore. 4. In the plural, those persons engaged in ore dressing.

Dressing. 1. (Mid.) Trimming and cleaning up a stall face after the loaders have left off work. (Gresley)
2. (Corn.). The picking and sorting of ores, and washing, preparatory to reduction. (Raymond)

Dressing floor. The floor, place, or yard where ores are rough dressed or sorted.

Dressing works. *See* Concentrator; *also* Ore dressing.

Driblet-cone. A small fantastic cone, formed by the adhesion of congealing driblets of liquid lava from a volcanic blowhole: contrasted with cinder cone. (Standard)

Dries, or Dry. Seams in the rock, which are usually invisible in the freshly quarried material, but which may open up in cutting or on exposure to the weather. *See also* Dry, 1 and 2. (Ries)

Drift. 1. A horizontal passage underground. A drift follows the vein, as distinguished from a crosscut, which intersects it, or a level or gallery, which may do either. (Raymond)
2. In coal mining, a gangway or entry above water level, driven from the surface in the seam. (Steel)
3. (No. of Eng.) A heading driven on the strike of the coal seam. 4. (Forest of Dean) A hard shale. (Gresley)
5. To make a drift; to drive. (Webster)
6. Any rock material, such as bowlders, till, gravel, sand, or clay, transported by a glacier and deposited by or from the ice or by or in water derived from the melting of the ice. Generally used of the glacial deposits of the Pleistocene epoch. Detrital deposits. (La Forge)

Drift and pillar (No. Staff.). A system of working coal similar to the room and pillar system.

Drift-band (Ill.). A thin band or layer of soft earthy material occurring in a coal seam.

Drift-bed. In geology, a layer of drift of sufficient uniformity to be distinguished from associated ones of similar origin; a drift stratum. (Century)

Driftbolt. A bolt for securing together successive layers, as of stones in a foundation or of timbers in a grillage. (Webster)

Drift copper. Native copper found in gravel and clay, far from the original orebody, from which it has been carried by glaciers. (Weed)

Drift deposit. Any accumulation of glacial origin; glacial or fluvio-glacial deposit. (Century)

Drift epoch. Same as Glacial epoch.

Drifting. Opening a drift; driving a drift. *See also* Drift, 1, 2, and 3.

Drifting back (No. Staff.). The operation of mining the pillars toward the pit bottom as soon as the cross headings are driven. (Gresley)

Drifting curb. A wooden frame forced downward through quicksand, having planks driven at the back of it to keep out the sand and water. (Gresley)

Drift map. A map showing the distribution of various glacial and fluvio-glacial deposits, generally called drift. (Century)

Drift mine. A mine opened by a drift.

Drift mining. A method of mining gold-bearing gravel, or cement, by means of drifts and shafts, as distinguished from the process of hydraulic mining (Webster). *See* Placer mining.

Drift peat. A peat deposit associated with or embedded in glacial drift. (Century)

Drift scratches. Marks on the surface of solid ledges of rocks, supposed to have been produced by the grinding action of masses of soil, gravel and rocks, during glacial movement. (Jackson)

Drift slabs. Slabs of more than ordinary length, used especially for holding back dirt, sand and water from a shaft. (Duryee)

Drift stoping. *See* Sublevel stoping.

Driftway. *See* Drift, 1.

Driggoe (Corn.). The lower pump in a set or tier; the working piece. Also called Drigger. (Pryce)

Drill. 1. A metallic tool for boring in hard material. The ordinary miner's drill is a bar of steel with a chisel-shaped end, and is struck with a hammer. *See* Rock drill, Diamond drill. (Raymond)
2. To make a hole with a drill or similar tool. 3. *See* Drilling, as applied to oil and gas wells.

Drill core. A solid, cylindrical core of rock cut out by a diamond or shot drill. It forms a record of the strata through which the drill has passed. (Weed)

Driller. 1. One who or that which drills. 2. A drilling machine. (Standard)

Drill extractor. A device for withdrawing the drill bit from wells; drill tongs. (Standard)

Drilling. A term employed in a general way to denote the different processes employed for the discovery and extraction of petroleum or natural gas. Two general methods of drilling have come to be recognized: (*a*) Percussion systems, which consist of breaking up the ground by means of a sharp pointed instrument of a particular form, which is made to strike the ground in a series of blows; and (*b*) Rotary systems, which aim at the extraction of a core or permit all the disintegrated material to be washed away. (Mitzakis). Also commonly used in prospecting for, and in the development of ore or coal lands.

Drilling jig. A portable drilling machine worked by hand. (Century)

Drilling-up. Preliminary digging out the clay in the tap hole of a furnace. This is done usually by hand, air, or electric drill. (Willcox)

Drill-jars. *See* Jars.

Drill rod. A vertical rod bearing a drilling tool for boring wells. (Standard)

Drink time (Eng.) Meal time. (Bainbridge)

Drip. 1. A name given to an apparatus attached to natural-gas wells to exclude from the mains any liquid, such as oil or water, that may accompany the gas. It usually consists of four iron tubes placed vertically, the inner two being connected by a cross tube. During the passage of the gas through this apparatus, the liquid becomes separated and accumulates in a tube called a tail piece, from which it is blown out from time to time. (Mitzakis) Any opening arranged to take a liquid from a line carrying gas, as condensation from a steam line.
2. (Eng.) The dip of a stratum. (Webster)

Drip stone. 1. A porous stone, either artificial or natural, for filtering water. 2. Calcium carbonate in the form of stalactites and stalagmites. (Webster)

Drive. 1. To excavate horizontally, or at an inclination, as in a drift, adit or entry (Gresley). Distinguished from sinking and raising.
2. (Aust.) A level, drift, or tunnel in a mine. (Hanks)

Driven well. A well which is sunk by driving a casing, at the end of which there is a drive-point, without the aid of any drilling, boring, or jetting device. (Meinzer)

Drive pipe. 1. A pipe which is driven or forced into a bored hole, to shut off water, or prevent caving. (Nat. Tube Co.)
2. A thick type of casing fitted at its lower end with a sharp steel shoe, which is employed when heavy driving has to be resorted to for inserting the casing. (Mitzakis)

Drive-pipe ring. A device for holding the drive pipe while being pulled from well. (Nat. Tube Co.)

Driver. 1. A person who drives a horse or mule in a mine. (Roy)
2. One who controls the movements of a locomotive, motor car, or the like. (Webster)
3. (Eng.) A bit of iron for forcing the wood into a blasting hole (Bainbridge). A tamping iron.
4. (Eng.) A man who breaks down the coal in the stalls with hammers and wedges, after the holing is finished. A miner. (Gresley)

Driver boss. A person in charge of the drivers in a mine. (Steel) *See* Driver, 1.

Drive shoe. A protecting end attached to the bottom of drive pipe and casing. (Nat. Tube Co.)

Driving. 1. Extending excavations horizontally. Distinguished from sinking and raising. (Raymond)
2. A long narrow underground excavation or heading. 3. (Brist.) A heading driven through rock. (Gresley)

Driving cap. A cap of iron, fitted to the top of a pipe, as in an oil well, to receive the blow when driven and thus protect the pipe. (Century)

Driving on line. The keeping of a heading or breast accurately on a given course by means of a compass or transit. In Arkansas, called Driving on sights. (Steel)

Drop. 1. To lower the cage to receive or discharge the car when a cage of more than one deck is used.
2. (No. of Eng.). A chute down which coal is run into keels or boats.
3. To allow the upper lift of a seam of coal, to fall or drop down. (Gresley)
4. (Eng.) The quantity of coal brought down at one cutting. (Bainbridge)
5. (Scot.) The apparatus by which mineral is let down a blind shaft to a lower level. 6. (Scot.) To work the upper portion of a thick seam after the lower portion has been worked. 7. (Scot.) To stop work. (Barrowman)

Drop forge. To forge between dies by a drop hammer or drop press. (Webster)

Drop hammer. A hammer for forging, the weight being raised and then released to drop on the metal resting on the die or anvil. (Webster)

Dropper (Corn.). A branch vein leaving the main vein on the footwall side. (Raymond)

Dropping pillars and top coal (Aust.). The second working, consisting of drawing the pillars, and in thick seams breaking down the upper portion of the seam that was left temporarily in position. (Power)

Drop pit. A shaft in a mine, in which coal is lowered by a brake wheel. (Gresley)

Drop sheet (No. of Eng.). A door made of canvas, by which the ventilating current is regulated and directed through the workings (Gresley). *See also* Curtain.

Drop shot. Shot made by dropping or pouring melted lead as opposed to such as are cast, as buckshot and bullets. (Century)

Drop staple (Eng.). An interior shaft, connecting an upper and lower seam, through which coal is raised or lowered. (G. C. Greenwell)

Dropstone. A stalactitic variety of calcite. (Century)

Drop sulphur. Sulphur granulated by pouring it molten into water. (Webster)

Drop tin. Tin granulated by pouring it molten into water. (Webster)

Drop zinc. Zinc in the form of small globules. (Webster)

Dross. 1. Refuse or impurity in melted metal; slag. A zinc-and-iron alloy forming in a bath of molten zinc, in galvanizing iron. (Standard)
2. The material skimmed from the surface of freshly melted, not perfectly pure metal. (Raymond)
3. (Scot.) Small coal which passes through a riddle or screen. (Barrowman)

Dross coal. 1. (Scot.) In cannel coal districts, common or free coal. *See also* Free coal, 2 (Barrowman). 2. *See* Dross, 3.

Drossy coal (Derb.). Coal containing pyrite. (Gresley)

Drowned; Drowned out. Flooded: said of mines under water. (Gresley)

Drowned level. *See* Blind level, 2.

Drowned waste. Old workings full of water. (Gresley)

Druggon (So. Staff.). A square iron or wooden box, used for conveying fresh water for horses, etc., in a mine. (Raymond)

Drum. 1. That part of the winding machinery on which the rope or chain is coiled. (Raymond)
2. (Lanc.) A brick, iron, or wooden cylinder, used when sinking a shaft through sand. 3. *See* Running-the-drum. (Gresley)
4. A metal cask for shipment of oil, gasoline, etc.

Drum head (No. of Eng.). A short heading formed to the rise of a level, or bank head, in which the drum of a self-acting inclined plane is fixed. (Gresley)

Drum horns. Wrought-iron arms or spokes projecting beyond the surface or periphery of flat-rope drums, between which the ropes coil or lap. (Gresley)

Drumlin. An elongated or oval hill of glacial drift normally compact and unstratified, usually with its longer axis parallel to the direction of the movement of the transporting ice. (Webster)

Drumming. The process of sounding the roof of a mine to discover whether rock is loose. (Deep Vein Coal Co. *v.* Reney, 112 N. E. Rept., p. 397)

Drummy. Loose coal or rock that produces a hollow sound when tapped with any hard substance (Dodd *v.* Pocahontas Consol. Collieries Co., 244 Fed. Rept., p. 151). Said especially of a mine roof.

Drum pulley. A pulley wheel used in place of a drum (Gresley). *See also* Koepe system.

Drum rings. Cast-iron wheels, with projections, to which are bolted the staves or laggings forming the surface for the hoisting cable to wind upon. The outside rings are flanged, to prevent the cable from slipping off the drum. (Gresley)

Drum sheave (Aust.). A cylindrical drum placed vertically on the inside of a curve, against which the main rope of a main-and-tail-rope system moves when rounding the curve. (Power)

Drusa (Sp.). Druse; geode. (Lucas)

Druse. A crystallized crust lining the sides of a cavity (Raymond). *See* Geode, 1; *also* Vug.

Drusy. Covered with minute crystals.

Dry. 1. (Scot.) A joint in the roof of a coal seam, which can not usually be discovered until the roof falls. (Gresley)
2. (Scot.) An incipient crack, as in building stone. (Barrowman)
3. (Corn.) *See* Change house. 4. To free from water. 5. A drying house. 6. That which is dry, as dry land. (Webster)
7. A metal containing too large a proportion of oxygen; not sufficiently poled: said of copper in process of refining. (Standard)

Dry amalgamation. Treating ores with hot dry mercury. (C. and M. M. P.)

Dry blowing (Aust.). A method of winnowing alluvial ore by allowing it to fall from a height while the wind is blowing. (Standard)

Dry-bone. A miner's term for an earthy, friable carbonate of zinc, smithsonite. Often frequently applied to the hydrated silicate, so-called calamine. Usually found associated in veins or beds in stratified calcareous rocks accompanying sulphides of zinc, iron, and lead. (Dana)

Dry casting. A method of casting in which the molds are made of sand and afterwards dried. (Century)

Dry coal. Coal containing but little hydrogen. (Gresley)

Dry diggings. 1. Placers not subject to overflow (C. and M. M. P.)
2. Placer mines or other mining districts where water is not available. (Standard)

Dry distillation. *See* Destructive distillation.

Dryer white. A white scum which forms on brick during drying. (Ries)

Dryer. An apparatus for drying ores, preliminary to smelting. Dryers are of various types as: revolving, cylindrical, zigzag, tower, and cast-iron plates. (Ingalls, p. 617)

Dry gas. Natural gas obtained from sands that produce gas only. It does not contain oil vapors.

Dry hole. A drill hole in which no water is used, as a hole driven upward (Standard). A well in which no oil or gas is found.

Dry hone. An artificial razor hone in which the sharpening crystals or grains are so blended with the bond that good results can be obtained without the use of lubricants. (Pike)

Drying-off. The process by which an amalgam of gold is evaporated, as in gilding. (Century)

Drying oven; Porcelain oven. An oven for firing porcelain. (Standard)

Dry man. A man in charge of the building in which workmen change their clothes.

Dry method. 1. The method of mixing the raw materials of Portland cement in a dry state. (Bowles)
2. In chemical analysis, the treatment of the compound with dry reagents, as blow-piping in qualitative analysis and assaying in quantative analysis. (Standard)

Dry ore. An argentiferous ore that does not contain enough lead for smelting purposes. (C. and M. M. P.)

Dry pan. A circular revolving pan with perforated bottom, in which two large rollers revolve by friction against the pan floor. It is used for grinding dry clays. (Ries)

Dry-press process. A method of forming clay wares by using slightly moistened clay in pulverized form and pressing it into steel dies. (Ries)

Dry process. A method of treating ores by heat as in smelting; used in opposition to wet process where the ore is brought into solution before extraction of the metal. *See also* Wet process.

Dry puddling. A process of decarbonization on a siliceous hearth in which the conversion is effected rather by the flame than by the reaction of solid or fused materials. As the amount of carbon diminishes the mass becomes fusible and begins to coagulate (come to nature), after which it is worked together into lumps (puddle-balls, loups) and removed from the furnace to be hammered (shingled) or squeezed in the squeezer, which presses out the cinder, etc., and compacts the mass at welding heat, preparatory to rolling. Silicon, and phosphorus are also largely removed by puddling, passing into the cinder (Raymond). *See also* Puddling.

Dry rods (Scot.). Pump rods outside the delivery pipes or rising main. (Barrowman)

Drys. *See* Dry, 1 and 2.

Dry sand. 1. Sand prepared for molds by thorough drying and baking. When special cohesion is required (as for cores) other substances, such as flour, molasses, etc., are mixed with it. (Raymond)
2. A stratum of dry sand or sandstone encountered in well drilling. A nonproductive sandstone in oil fields.

Dry separation. The elimination of the small pieces of shale, pyrite, etc., from coal by a blast of air directed upon the screened coal. *See also* Wind method. (Gresley)

Dry sharpening stone. A stone so constituted that its crystals break away from its binding material so rapidly that the particles of steel have no chance to fill the pores of the stone. Sandstone and coarse gritted scythestones are good examples. (Pike)

Drystone. Composed of stones, not cemented with mortar, as a drystone wall. (Century)

Dry sweating. A process by which impure blister-copper is exposed to a long, oxidizing heat below fusion point. (Standard)

Dry wall. A rock wall set up without cementing material. *See* Drystone.

Dry-wall method. *See* Overhand stoping.

Dry wash. *See* Wash, 4.

D-truck (Aust.). A low side-opening truck, used for conveying coal for home consumption, and from which the coal has to be shoveled. (Power)

Dualin. A variety of dynamite consisting of 4 to 5 parts nitroglycerin, 3 parts sawdust, and 2 parts saltpeter. (Webster)

Dual rope (York.). A hemp capstan-rope upon which men ride in a mine shaft. (Gresley)

Duck machine. An arrangement of two boxes, one working within the other, for forcing air into mines. (C. and M. M. P.)

Duck's nest. *See* Springing. (Du Pont)

Duck's-nest Tuyère. A tuyère having a cupped outlet. (Standard)

Ducktownite (Tenn.). An intimate mixture of the minerals pyrite and chalcocite. (Chester)

Ductile. Capable of being permanently drawn out or hammered thin. (Webster)

Dudgeonite. The mineral annabergite with about one-third of the nickel replaced by calcium. (Min. Res., U. S. Geol. Surv., 1915, pt. 2, p. 744)

Dudley rock. A fossiliferous limestone of the English Wenlock (Upper Silurian). (Standard)

Due. The amount of royalty or ore payable to the lord of the manor or owner of the soil. (Davies)

Due bill. Same as Pay bill.

Duela (Sp.) 1. The stave of a barrel or cask, etc. 2. Stone of a floor, etc. 3. Flooring board. (Dwight)

Dueño (Mex.). Owner; shipper of ore. (Dwight)

Dues (Corn.). *See* Due. Also called Dish. (Pryce)

Duff (Aust.). The fine coal left after separating the lumps (Power). Very fine screenings; dust.

Duffer (Aust.). *See* Shicer.

Duff furnace. A furnace used for the manufacture of producer gas. (Ingalls, p. 305)

Duffy (Scot.). Soft; inferior. (Barrowman)

Dufrenite. A hydrous iron phosphate mineral. Contains approximately 27.5 per cent, P_2O_5, 62 per cent Fe_2O_3, and 10.5 per cent H_2O. Exact composition doubtful. (U. S. Geol. Surv.)

Dufrenoysite. A native sulpharsenide of lead, $Pb_2As_2S_5$. (U. S. Geol. Surv.)

Duggle (Corn.). *See* Troil

Duin. A gold-washing dish used in Jashpur, India. (Lock)

Dukeway (Som.). A method of hoisting coal on an incline from the working face to the pit-bottom by a rope attached to the winding-engine at surface in such a way that while the cage is going up, the empty trams are running down the incline, and as the cage descends the loaded cars are brought up to the shaft. (Gresley)

Dukey. 1. (Som.) A large carriage or platform mounted upon wheels and used on an inclined track underground, for carrying a number of small cars of coal. 2. (So. Wales) An inclined plane worked by engine power. (Gresley). *See* Dukeway.

Dukey rider (Wales). A boy who accompanies the trams upon an incline plane. (Gresley)

Dulan (Borneo). A circular concave tray for washing gold. (Lock)

Dull. 1. (Brist.). Slack ventilation; insufficient air in a mine. (Gresley) 2. Not keen in edge or point; blunt. 3. Sluggish; slow in action. (Webster)

3. As applied to the degree of luster of minerals, means those minerals in which there is a total absence of luster, as chalk, kaolin.

Dumb bolts (Scot.). Bolts at joints of single-plated pump rods, at right angles to those through the plates, to prevent the latter from tearing the wood. (Barrowman)

Dumb'd. Choked or clogged, as a grate or sieve in which the ore is dressed. (Davies)

Dumb drift. An airway constructed to convey the ventilating current around the ventilating furnace to the upcast, instead of passing it directly through or over the fire. (Chance)

Dumb fault. A break in strata caused by a current of water eroding a portion of it during the general period of its deposition. (Power)

Dumb furnace. A ventilating furnace, designed so that the foul, inflammable air from the more remote parts of the mine enters the upcast above the hot gases from the fire. (Webster)

Dumb screw (Scot.). A screw jack. (Barrowman)

Dummy. 1. (No. Staff.) A low truck on four wheels running upon rails, and loaded with pig iron or some other heavy material; employed in steep coal beds as a balance-weight to bring up an empty tub or car. (Gresley)
2. A paper bag filled with sand, clay, etc., for tamping or for separating two charges in a double-loaded bore hole. (Du Pont)

Dumortierite. A bright smalt-blue to greenish-blue, lavender or reddish, transparent to translucent, aluminum silicate, perhaps $4Al_2O_3.3SiO_2$, occurs as a mineral, usually in fibrous to columnar aggregates. (Dana)

Dumoulin process. A method whereby copper is deposited on a rotating mandrel and later stripped off as a long strip, which is then drawn into wire without recasting. (Liddell)

Dump. 1. A pile or heap of ore, coal, culm, slate, or rock. 2. The tipple by which the cars are dumped. *See* Tipple. 3. To unload a car by tipping it up. (Chance)
4. (Cal.) The fall immediately below a hydraulic mine. (Hanks)
5. The fall available for disposal

of refuse at the mouth of a mine. (C. G. W. Lock)
6. (Eng.) A deep hole in the bed of a stream or pond. (Webster)

Dump cart. A cart or car having a body that can be tilted, or a bottom opening downward, for emptying. (Webster)

Dumper. 1. A tilting-car used on dumps. (Raymond)
2. One that dumps or operates a dump cart. (Webster)
3. (Scot.) A tool for keeping a bore hole circular. (Barrowman)

Dump hook. A chain grab hook having a lever attachment for releasing it from the object to which it is connected. (Webster)

Dump house. The building where the loaded mine cars are emptied into the chutes. (Roy)

Dump moraine. A kind of terminal moraine consisting of material dropped either from the surface or from the interior of the glacier. (Standard)

Dump-skip. A skip with an attachment that dumps the load automatically. (Standard)

Dumpy level. A surveyor's level having a short telescope rigidly fixed to a table capable only of rotary movement in a horizontal plane. (Webster)

Dune. A heap of blown sand (Roy. Com.). *See also* Sand dune.

Dunite. A variety of peridotite consisting essentially of olivine and chromite. It was named from the Dun mountains in New Zealand, the original locality, but it also occurs in North Carolina. (Kemp)

Dunn bass (Lanc.). An argillaceous shale in coal mines. *See also* Bind. (Gresley)

Dunnet shale. An oil shale, from 4 to 12 feet in thickness, found in Scotland; it yields from 24 to 33 gallons of crude oil per ton. (Bacon)

Duns (Glouc.). Argillaceous shale. *See* Cliff, 1, and Bind, 1. (Gresley)

Dunstone. 1. (Derb.) Ironstone in beds or seams. 2. (Wales) Hard kind of fire clay, or under-clay. (Gresley)
3. A local term for certain magnesian limestones of a yellowish dun or cream color, occurring near Matlock, Derbyshire. (Page)

Dun whin (No. of Eng.). Any dun-colored, hard rock found in coal measures (Gresley). *See also* Whin.

Duplex breaker. A breaker having more than one crushing chamber. (Richards, p. 21)

Duplex channeler. A type of channeling machine which cuts two channels simultaneously. (Bowles)

Duplex hammer. *See* Double hammer.

Duplex wire. Two insulated-copper leading-wires wrapped together with paraffined cotton covering. (Du Pont)

Durangite. An orange-red fluo-arsenate of sodium and aluminium, $Na(AlF)AsO_4$, occurring in monoclinic crystals. (Dana)

Durbachite. A name given to a basic development at the outer border of a granite intrusion in Baden. It has the general composition of mica syenite. (Kemp)

Durdenite. A greenish-yellow hydrous ferric tellurite, $Fe_2(TeO_3)_3+4H_2O_4$. (Dana)

Dureza (Sp.). Hardness; solidity. (Halse)

Durgy (Corn.). Anything low or short. (Davies.) A variation of *durgan*, a dwarf.

Duriron. An acid-resisting alloy used in chemical works and laboratories. It consists of 14 to 14.5 per cent silicon, 0.25 to 0.35 per cent manganese, 0.2 to 0.6 per cent carbon, 0.16 to 0.2 per cent phosphorus, and under 0.05 per cent sulphur, the remainder being iron. Its melting point is from 2,500° to 2,550° F. The specific gravity is 7. (Min. and Sci. Press, vol. 114, 1917, p. 59.)

Durmiente (Mex.). A railroad-sleeper. The sill of a set of timbers. (Dwight)

Durn (Corn.). A frame of timbering, like a doorframe. (Raymond.) Also spelled Durns; Durnz; Durnze.

Duro (Sp.). Hard; *Duros* (Mex.) 1. Hard copper ores in which quartz predominates in the matrix. 2. Badly calcined ores. (Halse)

Dürr (Ger.). The barren part of a lode. (Davies)

Dust. Earth or other matter in very fine particles, so attenuated that they can be raised and carried by the wind; finely comminuted or powdered matter (Century). *See* Coal dust.

Dust bell. The seal at the bottom of the dust catcher, dust leg, or water-seal valve, which is opened periodically to drain flue dust from the system. (Willcox)

Dust chamber. An inclosed flue or chamber filled with deflectors, in which the products of combustion from an ore-roasting furnace are allowed to settle, the heavier and more valuable portion being left in the dust chamber and the volatile portions passing out through the chimney or other escape. (Century)

Dust-devil (India and Western U. S.). A moving column of sand; a sand spout (Webster). *See* Dust storm.

Duster. 1. (Wales.) A man employed in cleaning tramways of dust and dirt in and about mines. (Gresley) 2. An unproductive boring for oil or gas.

Dust explosion. An explosion of carbonaceous material as coal dust, flour, etc.

Dust firing. The burning of coal dust in the laboratory of the furnace. (Ingalls, p. 269)

Dust gold. Pieces of gold under 2 to 3 dwt. (C. and M. M. P.) Very fine gold.

Dust-laying oils. Crude oils, heavy asphalt oils, tars, solutions of petroleum asphalt in gas oils, liquid asphalt, and emulsions of oils and water, used for laying dust on roads. (Bacon)

Dustman. One who dumps the dust catcher or loads the dust at blast furnaces. (Willcox)

Dustplate. A vertical iron plate, supporting the slag runner of an iron blast furnace. (Raymond)

Dust storm. A violent, spiral convectional dust-laden whirlwind moving across an arid region (Webster). *See* Dust-devil.

Dutch drop. A haulage term used at Anaconda, Mont., for flying switch.

Dutch metal. An alloy of copper, 84.7, and zinc, 15.3 per cent. (Ure)

Dutch ocher. Chrome yellow and whiting. (Standard)

Dutch oven. *See* Forechamber.

Dutch tile. A flat enameled earthenware tile painted in colors (usually in blue) with inscriptions and designs: often used for decorating chimneypieces and fireplaces. (Standard)

Dutch white. A pigment consisting of one part of white lead and three parts of permanent white. (Webster)

Duty. 1. A measure of the effectiveness of a steam engine, usually expressed in the number of foot-pounds (or kilogrammeters) of useful work obtained from a given quantity of fuel. (Raymond)
2. (of a Cornish pumping engine) The number of pounds of water raised one foot high with a consumption of 112 lbs. of coal. (Gresley)
3. (Derb.) That part of the ore which belongs to the lord or owner of the mine, usually every thirteenth dish. *See also* Due (Hooson)

Duty-ore (Corn.). The landlord's share of the ore. (Raymond)

Duxite. A resin from the lignite of Dux, Bohemia; it fuses at 246° C., has a specific gravity of 1.133, and is near walchowite. (Bacon)

Dyas. The permian series of strata in part of western Europe, where it comprises two well-marked subdivisions. (La Forge)

Dyestone. *See* Clinton ore.

Dyestone fossil. Same as Dyestone; Fossil ore.

Dyestone ranges. A term applied to the outcrop of Clinton iron ores extending through Maryland, Virginia, West Virginia, and into Tennessee. (Ore Dep., p. 117)

Dying out. Applied to veins that gradually get narrower and narrower until they cease entirely (Power). Also called Tailing out.

Dying shift (Scot.). The third or ten o'clock shift (Barrowman). *See also* Graveyard shift.

Dyke. *See* Dike.

Dynamic geology. *See* Geology.

Dynamic head. That head of fluid which would produce statically the pressure of a moving fluid. (Standard)

Dynamic metamorphism. Metamorphism produced by earth movements in regions of great dislocation, shear or crushing of rocks. Distinguished from chemical processes, but the former are seldom unattended by the latter.

Dynamite. 1. Originally, an explosive made of 75 per cent nitroglycerin absorbed in 25 per cent kieselguhr; now any high explosive containing nitroglycerin and used for blasting purposes (De Prat). A composition of detonating character containing nitroglycerin. "Dynamite or blasting compound is used with intention, before nitroglycerin came into use, to designate all explosive compositions of matter containing nitroglycerin which are not dynamite, but we cannot have a dynamite which does not contain nitroglycerin (if). E. Monroe (U. S. Ex. Mines). The strength varies according to the percentage of nitroglycerin contained. Frequently called Giant powder.
2. To charge with dynamite. 3. To blow up or shatter with dynamite. (Webster)

Dynamiter. One who uses or is in favor of using dynamite or similar explosives for unlawful purposes. (Century)

Dynamo. A machine used for converting mechanical energy into electrical energy by magneto-electric induction. (Webster)

Dynamo metamorphism. Same as Dynamic metamorphism.

Dyne. In physics, the unit of force in the centimeter-gram-second system, being that force which acting on one gram for one second generates a velocity of one centimeter per second. (Century)

Dyscrasite. A variable silver antimonide mineral, including Ag_2Sb. (U. S. Geol. Surv.)

Dyxenite. An inflammable, flexible, slightly elastic, yellow or greenish gray hydrocarbon from Melili, Sicily, and from certain German lignite deposits; it has a specific gravity of 1.14 to 1.25 (Bacon). When burned it yields an odor like asafoetida. (Chester)

Dysprosium. An element of the rare-earth group. Symbol, Dy; atomic weight, 162.5. (Webster)

Dystome spar. A synonym for Datolite. (Chester)

Dystomic. Having an imperfect fracture or cleavage. (Century)

Dyszyntribite. A name given by C. U. Shepard, to a mineral or rock in St. Lawrence Co., N. Y., in which is a hydrated silicate of aluminium and potassium, and is related to pilite; the name means hard to crush. Compare Parophite. (Hemp)

Dzhu (Corn.). To cut ahead on one side of a face, so as to increase the efficiency of blasting on the remainder. (Doubtless the same word as Diare.) See Dissuing. Also Hitk. (Raymond)

E.

Eaglestone. A concretionary nodule of limonite of the size of a walnut or larger; aëtites. The ancients believed that the eagle transported these stones to her nest to facilitate the laying of her eggs. (Webster)

Ear. 1. The inlet or intake of a fan. (Chance)
2. (Derb.) A small iron loop or ring fixed on the sides of tubs, etc., to which side-chains are attached. (Gresley)

Earth. 1. The solid matter of the globe in distinction from water and air. The ground. The firm land of the earth's surface. 2. Loose material of the earth's surface; the disintegrated particles of solid matter in distinction from rock; soil. 3. In chemistry, a name formerly given to certain inodorous, dry, and uninflammable substances which are metallic oxides, but were formerly regarded as elementary bodies. (Century)
4. A term used for soft shaly or clayey ground when sinking through the coal measures. (Gresley)

Earth auger. An earth borer. (Standard)

Earth borer. An auger for boring into the ground. It works in a cylindrical box which retains the cut earth until the tool is withdrawn. (Standard)

Earth coal. 1. A name sometimes given to lignite. An earthy brown coal. (Gresley)
2. Mineral coal as distinguished from charcoal. (Webster)

Earth current. A current flowing through a wire the extremities of which are grounded at points on the earth differing in electrical potential. The earth current is due to this difference, which is generally temporary and often very large. (Century)

Earth din. An earth quake. (Webster)

Earth fall. A landslide. (Webster)

Earth flax. An early name for asbestos (Chester). *See also* Amianthus.

Earth foam. The mineral aphrite (Chester). A foliated pearly variety of calcite near argentine. The softer varieties approach chalk.

Earth metal. Any metal whose oxide is classed as an earth. (Webster)

Earth movement. Differential movement of the earth's crust; local elevation or subsidence of the land. (Webster)

Earth of bone (Eng.). A phosphate of lime, sometimes termed "bone phosphate," derived from bones by calcination. (Page)

Earth oil. Petroleum. (Webster)

Earth pitch. Mineral tar; a kind of asphalt. (Webster)

Earth-pulsation. A slow undulation of the earth's crust so gradual and slight as to escape ordinary observation. (Standard)

Earthquake. A local trembling, shaking, undulating, or sudden shock of the surface of the earth, sometimes accompanied by fissuring or by permanent change of level. Earthquakes are most common in volcanic regions, but often occur elsewhere. (Roy. Com.)

Earth's crust. The external part of the earth, accessible to geological investigation. The use of this term does not necessarily imply that the rest of the earth is not also solid. (Roy. Com.)

Earth-tilting. A slight movement or displacement of the surface of the ground as in some forms of earthquakes. (Century)

Earth tremor. A slight earthquake. (Standard)

Earth wax. *See* Ozocerite.

Earthy brown-coal. A brown, friable mineral, sometimes forming layers in beds of lignite. In general, it is not a true coal, for a considerable part of it is soluble in ether and benzol, and often in alcohol. *See* Leucopetrite and Bathvillite. (Bacon)

Earthy calamine. An early name for hydrozincite. (Chester)

Earthy coal. *See* Earth coal, 1.

Earthy fracture. A fracture resembling that of a lump of hard clay. (George)

Earthy lead-ore. A variety of cerussite. (Power)

Easement. An incorporeal right existing distinct from the ownership of the soil, consisting of a liberty, privilege, or use of another's land without profit or compensation; a right of way. (Standard; U. S. Min. Stat., p. 608)

Eat out (No. of Eng.). To turn a heading or holing to one side in order to mine the coal on the other side of a fault without altering the level course of the heading. (Gresley)

Eave tile; Starters. Roofing tile, closed underneath at the lower end and placed at the eave line. (Ries)

Ebano. A trade name for a residual pitch from Mexican petroleum. (Bacon)

Ebb (Scot.). Shallow, not deep (Webster). A coal seam is ebb when near the surface; the shaft is ebb which is sunk to it.

Ebb-and-flow structure. A stratification consisting of horizontally laminated layers, with others obliquely laminated, indicative of alternations of tidal currents during deposition. (Standard)

Ebonite. A black variety of hard rubber capable of being cut and polished; vulcanite. (Webster)

Eboulement (Fr.). A term adapted from the French for sudden rock falls and earth-slips in mountainous regions. (Page)

Ebullition. Act, or process of boiling or bubbling up; effervescence. (Webster)

Eccentric. A device for converting continuous circular into reciprocating rectilinear motion, consisting of a disk mounted out of center on a driving shaft, and surrounded by a collar or strap connected with a rod. Rotation of the driving shaft gives the rod a back-and-forth motion. (Standard)

Eccentric bit. A modified form of chisel used in drilling, in which one end of the cutting edge is extended further from the center of the bit than the other. The eccentric bit renders under-reaming unnecessary. It is very useful in hard rock. (Mitzakis)

Ecdemite; Heliophyllite. A bright yellow to green lead chlorarsenite, perhaps $Pb_4As_2O_7.2PbCl_2$, occurring as a mineral in crystal or massive form and as a incrustation. (Dana)

Echadero (Mex.). Level place near a mine, where ore is cleaned, piled, weighed, and loaded. Also called *patio* of the mine. (Dwight)

Echado (Sp.). Inclination or dip of a vein. (Halse)

Echar planilla (Mex.). Gobbing; packing; filling with waste material. (Dwight)

Eclogite. A more or less schistose metamorphic rock, consisting of a light-green pyroxene (omphacite), actinolite (var. smaragdite) and garnet. Scarcely known in America. The name is from the Greek "to select," in reference to its attractive appearance. (Kemp)

Economic geology. *See* Geology.

Economic mineral. Any mineral having a commercial value (Roy. Com.). *See also* Ore.

Economizer. An apparatus for utilizing the heat that would otherwise be wasted, as in a system of water tubes in the uptake of a boiler to heat the feed water. (Webster)

Edenite. A light-colored aluminous magnesium-calcium amphibole. A variety of the mineral hornblende. (Dana)

Edge coal; Edge seam (Eng. and Scot.). Highly inclined seams of coal, or those having a dip greater than 30°. (C. and M. M. P.)

Edge mill. A crushing or grinding mill for ore in which a pair of stones or metal rollers are rolled around at the ends of a horizontal shaft turning about a central vertical axis. (Webster) Also called Edge runner, and Chaser.

Edger. The long pieces of timber in a wooden pillar or crib. *See also* Crosspieces. (Sanders, p. 115)

Edge rails (Scot.). Rails of rolled iron or steel on the upper edge of which the wheels run. (Barrowman)

Edge runner. *See* Chilean mill; Edge mill; Chaser.

Edge stone (N. Y. and Pa.). A commercial term applied to bluestone that splits out in slabs thicker than flagging and suitable for curbing, sills, door caps, etc. (Bowles)

Edge water. In oil and gas wells, water that holds the oil and gas in the higher structural positions. Edge water usually encroaches on a field after much of the oil and gas has been recovered and the pressure has become greatly reduced. *Compare* Top water; Bottom water. (U. S. Geol. Surv. Bull. 658, p. 44)

Edge wheel. *See* Edge mill.

Edingtonite. A white, grayish white or pink hydrous barium and aluminum silicate mineral, perhaps $BaAl_2Si_3O_{10}+3H_2O$. (Dana)

Edisonite. Titanic acid, rutile, occurring in golden-brown, orthorohmbic crystals, named in honor of Thos. A. Edison. (Chester)

Eduction pipe. The exhaust pipe from the low pressure cylinder to the condenser. (Nat. Tube Co.)

Eenie coal. (Scot.). Coal slightly altered through nearness to whin, the broken edges of which show bright circular spots more or less distinct, like eyes. (Barrowman)

Effective rate. *See* Nominal rate.

Effervesce. To bubble and hiss, as limestone on which acid is poured. (Webster)

Efficiency miner. A term frequently applied to a boss miner, or a contract miner.

Effloresce. To change on the surface, or throughout to a whitish, mealy or crystalline powder from the loss of water of crystallization on exposure to the air. (Webster)

Efflorescent. In mineralogy, forming an incrustation or deposit of grains or powder that resembles lichens or dried leaves; not uncommonly due to loss of water of crystallization. (La Forge)

Effluent. Applied by Dana to those igneous magmas which discharge from a volcano by way of a lateral fissure. *See* Superfluent and Interfluent. (Daly, p. 131)

Effluent stream. 1. A stream whose upper surface stands lower than the water table in the locality through which it flows, and which is not separated from the water table by any impervious bed. (Meinzer) 2. A stream that flows out of another stream or out of a lake. (Century)

Effosion (L.). The digging out from the earth, as of fossils, etc. (Humble)

Effusive. In petrology, poured out or erupted on the surface of the earth in a molten state, before solidification; extrusive: said of a certain class of volcanic igneous rocks. (La Forge)

Effusive period. The second and final stage of the solidification of porphyritic rocks from fusion, when at the outpouring on the earth's surface the "groundmass" is supposed to be formed. *Compare* Intratelluric period. (Standard)

Eflorescencia (Peru). An outcrop. (Dwight)

Efydd (Wales). Copper. (C. and M. M. P.)

Egg coal. In anthracite only—known as No. 2 coal. Coal that is small enough to pass through a square mesh of $2\frac{1}{2}$ or $2\frac{3}{4}$ inches, but too large to pass through a mesh of 2 inches. (Chance)

Eggette. *See* Briquet.

Egg-hole. (Derb.) A notch cut in the wall of a lode to hold the end of a stempel (Raymond). A hitch.

Egg stone. Oölite. (Webster)

Eglestonite. A native mercury oxychloride, Hg_4Cl_2O. (U. S. Geol. Surv.)

Egyptian jasper. A brown jasper, found in pebbles and small bowlders in Egypt. (Chester)

Egyptian pebble. A synonym for Egyptian jasper. (Chester)

Ehrhardt powder. Any of a series of explosive mixtures containing potassium chlorate, together with tannin, powdered nutgalls, or cream of tartar, and used for blasting, shells, etc. (Webster)

Eichhorn-Liebig furnace. A hand-worked muffle furnace. (Ingalls, p. 130)

Eisener hut, The German for iron hat, or gossan. (Weed)

Eje (Sp.). 1. Axle of a wheel. 2. Axis of a fold. 3. *Ejes de cobre* (Chile), copper matte containing 40 to 60 per cent copper. (Halse)

Elæolite; Eleolite. A name formerly current for the nephelite of Pre-Tertiary rocks. It is best known in the rock-name eleolite-syenite, a synonym of nephelite-syenite, but the latter is preferable. *See* Nephelite-syenite. (Kemp)

Elastic bitumen. *See* Elaterite.

Elastic limit. That point at which the deformation in the material ceases to be proportional to the stresses. (C. M. P.)

Elastic mineral-pitch. Elaterite.

Elaterite. A massive amorphous dark-brown hydrocarbon ranging from soft and elastic to hard and brittle. It melts in a candle flame without decrepitation, has a conchoidal fracture and gives a brown streak. *See also* Wurtzilite (U. S. Geol. Surv.). Elastic bitumen.

Elbow. 1. A fitting that makes an angle between adjacent pipes. The angle is always 90 degrees, unless other angle is stated. Also called Ell. (Nat. Tube Co.)
2. An acute bend in a lode. (Skinner)

Electric air-drill. A type of tripod drill operated by compressed air supplied by a portable motor-driven compressor that accompanies the drill. (Bowles)

Electrical calamine. Zinc silicate or calamine, so called, on account of its strong pyro-electric properties and to distinguish it from Smithsonite. *See also* Calamine. (Webster)

Electrical precipitation. The removal of suspended particles from gases by the aid of electrical discharges. The electrical current used may be alternating or direct. The alternating current agglomerates the suspended particles into larger aggregates causing rapid settling, especially if the gases are quiescent. The direct current is used when large volumes of rapidly moving gas, such as occur in smelter flues, are treated. The suspended particles within a strong electric field of constant polarity become charged and are then attracted to a plate (electrode) of opposite charge. (Fulton, p. 59, Bull. 84, Bur. Mines)

Electric blasting. The firing of one or more charges electrically, whether electric blasting caps, electric squibs, or other electric igniting or exploding devices are used. (Du Pont)

Electric blasting cap. A device for detonating charges of explosives electrically. It consists essentially of a blasting cap, into the charge of which a fine platinum wire is stretched across two protruding copper wires, the whole fastened in

place by a composition sulphur plug. The heating of the platinum wire bridge by the electric current ignites the explosive charge in the cap, which in turn detonates the high explosive. (Du Pont)

Electric detonator. An electric blasting cap. (Du Pont)

Electric drill. A mechanically operated drill employing neither compressed air nor steam, but driven by electric motor. It is used chiefly in mining operations. (Bowles)

Electric exploder. A former designation for Electric blasting cap. (Du Pont)

Electric locomotive. A locomotive driven by electricity and carrying no passengers (Standard). Called also a Motor and used in mine haulage.

Electric squib. A device similar to an electric blasting cap, but containing a gunpowder composition which simply ignites but does not detonate an explosive charge; used for electric firing of blasting powder. (Du Pont)

Electric system. All electric apparatus pertaining to the operation of the mine, and under the control of the mine officials, that is connected electrically to a common source of potential or that is installed so that it can be thus connected. (Clark)

Electric welding. A process of welding in which the parts to be joined are heated to fusion by an electric arc (arc welding) or by the passage of a large current through the junction; used in uniting steel rails, tubing, etc. *See also* Thermite. (Webster)

Electrobronze. Electroplated with bronze. (Standard)

Electrochemistry. The branch of chemistry that treats of electricity as active in effecting chemical changes. (Standard)

Electrocopper. To plate or cover with copper by means of electricity. (Century)

Electrode. Either terminal of an electric source; either of the conductors by which the current enters and leaves an electrolyte. *See* Anode; *also* Cathode. (Webster)

Electrolysis. Act or process of chemical decomposition by the action of an electric current; subjection to this process, as the electrolysis of salts of silica or nickel. (Webster)

Electrolyte. 1. The solution in which electrolytic separation of metals is carried on. (Weed)
2. A chemical compound which can be decomposed by an electric current. (Standard)

Electrolytic. Pertaining to electrolysis or an electrolyte; deposited by electrolysis (Webster). As applied to copper, means copper made from impure metal by electrical decomposition and redeposition; the bar of impure copper is gradually dissolved and the pure metal redeposited at the opposite pole of the battery, while other metals fall as black slime to the bottom of the tank in which the solution (electrolyte) is held. (Weed)

Electrolytic copper. The purest grade of refined copper, produced by the electrolytic process, and possessing the highest electric conductivity. (Skinner)

Electrolytic process. A process employing the electric current, either for separating and depositing metals from solution, or as a source of heat in smelting, refining, etc. (Standard). The process has many modifications and is used for recovering metals, as tin from scrap, or refining as of copper for electroplating, recovering metal from ore as by a combination of leaching, and electrolytic deposition.

Electrolyze. To subject to electrolysis. (Webster)

Electrometallurgy. That department of metallurgy employing the electric current, either for the electrolytic separation and deposition of metals from solutions, or as a source of heat in smelting, refining, etc. (Webster)

Electromotive force. The force, which by reason of differences of potential, causes electricity to move along a conductor.

Electron. One of those particles, having about one-thousandth the mass of a hydrogen atom, which are projected from the cathode of a vacuum tube as the *cathode* rays, and from the radioactive substances as the *beta* rays; also called Corpuscle. (Webster)

Electroplate. To plate or cover with an adherent coating of metal, commonly silver, nickel, or gold, by electrolysis. (Webster)

Electrum. 1. A natural alloy of gold and silver containing approximately 40 per cent of silver. (U. S. Geol. Surv.)
2. An alloy of copper, zinc, and nickel (Raymond). *See also* German silver.
3. *See* Succinite; *also* Amber.

Element. One of a limited number of distinct varieties of matter which, singly or in combination, compose every material substance; a substance which can not be separated into substances different from itself, at least by ordinary chemical processes. (Webster)

Elevante (Mex.). An overhand stope. (Dwight)

Elevator. 1. A device for raising or lowering tubing, casing, or drive pipe, from or into well. *See* Casing elevator. (Nat. Tube Co.)
2. A mechanical contrivance usually an endless belt or chain with a series of scoops or buckets for transferring material, as grain, to an upper loft or bin for storage.
3. A cage or platform and its hoisting machinery in a warehouse, mine, etc., for conveying persons or goods from one level or floor to another. Called a Lift in England. (Webster)

Elevator pump. An endless band with buckets attached, running over two drums for draining shallow ground. (C. and M. M. P.)

Elevator rope. A rope used to operate an elevator. (C. M. P.)

Elie ruby (Eng.). A variety of pyrope found in small garnet-like grains in the trap-tuff of Kincraig Point, near Elie, in Fifeshire. (Page)

Elihu Thomson process. A method of electric welding of iron. (Goesel, p. 110)

Eliquate. 1. To liquate; smelt. 2. To part by liquation. (Webster)

Eliquation. *See* Liquation.

Ellis vanner. A gyratory vanner.

Elmore process. 1. (Old Process) A flotation process wherein the ore is mixed with several times its weight of water, and an equal, or greater weight of oil. The oil carries the sulphides to the surface, and the gangue and water are removed from the bottom. This process was invented in 1898. 2. (Vacuum Process) A flotation process invented by Francis E. Elmore in 1904 in which flotation is secured by the addition of a small quantity of oil, and by the liberation of air in the pulp in a finely divided condition, this being accomplished by subjecting the freely flowing pulp to a vacuum and simultaneous heating. (Liddell)

Elpasolite. A variety of cryolite, in which the sodium is partly replaced by potassium. (Standard)

Elutriate. To cleanse or wash, or purify by washing and straining or decanting. (Webster)

Elutriation. Purification by washing and pouring off the lighter matter suspended in water, leaving the heavier portions behind. (Raymond)

Eluvial. Formed by the rotting of rock in place to a greater or less depth. (U. S. Geol. Surv. Bull. 263, p. 26)

Eluvium. Atmospheric accumulations *in situ*, or at least only shifted by wind, in distinction to alluvium, which requires the action of water. (Power)

Elvan. The Cornish name for a dike of quartz-porphyry or of granite-porphyry. (Kemp)

Elvan course. A plutonic dike (Duryee). An Elvan dike.

Elvanite (Corn.). A variety of rock of which elvans are made up, nearly equivalent to quartz-porphyry and granite-porphyry. (Century)

Elve. The handle of a miner's pick (Milford). A variation of Helve.

Embanques (Mex.). The wall accretions of a water-jacket furnace. (Halse)

Embarcarse la veta (Peru). To be lost (as a vein) by reason of a fault or intersecting dike. (Dwight)

Embayment. A deep depression in a shore line forming a large open bay. (Lowe)

Embije (Mex.). Thinly laminated mineral structure. (Dwight)

Embolite. A chlorobromide silver mineral, Ag(Cl,Br). (U. S. Geol. Surv.)

Emborrascarse (Mex.). To become barren by pinching out, etc. (Dwight)

Embouchure (Fr.). The mouth of a river. (Webster)

Embozado (Mex.). Rich mineral entirely embedded and concealed in barren rock. (Dwight)

Embudo (Mex.). A funnel; hopper. (Dwight)

Emerald. A bright, emerald-green, variety of beryl. Used as a gem. Called *Canutillos* in South America. (Dana)

Emerald copper. Same as Dioptase.

Emerald nickel. *See* Zaratite.

Emerged bog. In geology, a bog which grows high above the water-level, drawing up the water by its sponginess, and becoming much thicker than an immersed bog (Standard). *Compare* Immersed bog.

Emery. An impure form of the mineral corundum (Al_2O_3) used as an abrasive. *See* Corundum. (U. S. Geol. Surv.)

Emery stone. A mixture of gum shellac and emery, or emery and clay used for emery wheels. (Century)

Emery wheel. A wheel coated with emery or made of emery stone: for grinding or polishing. (Standard)

Emmonite. A variety of strontianite in which the strontium is partially replaced by calcium. (Standard)

Emmonsite. Probably a hydrated ferric tellurite. In thin yellow green scales. (Dana)

Empalado (Sp. Am.). Timbering; propping. (Lucas)

Empalmar (Sp.). To splice; to join. (Dwight)

Empalme (Sp.). 1. Splice in a rope. 2. Timber joint. 3. Junction of roads. (Dwight)

Emparejar (Sp.). To level or square up. (Halse)

Empellar (Mex.). To add silver or copper amalgam in the *patio* process. (Halse)

Empirical. Pertaining to or derived from experience or experiments, as an empirical formula.

Empleo (Sp.). The quantity of quicksilver mixed with the ore on any given occasion for effecting the amalgamation. (Min. Jour.)

Emplomada (Sp.). Lead poisoning. (Halse)

Empties. Empty mine or railroad cars. Empty railroad cars are called "flats" in Arkansas. (Steel)

Empty rope. Any winding or hauling rope from which the load upon it has been removed. (Gresley)

Empty track. A track for storing empty mine cars. (Steel)

Empty trip. Empty coal cars returning for another load. (Hargis)

Empyrical. (Rare) 1. Of or pertaining to combustion. 2. Having a combustible principle, as coal. (Standard)

Ems method. The condensation of dust and fumes from calcining furnaces by use of large flues filled with parallel rows of sheet iron. (Trans. Am. Inst. Min. Eng., vol. 11, p. 379)

Emulsion. Milkification. A liquid mixture in which a fatty or resincus substance is suspended in minute particles almost equivalent to molecular dispersion. From *L. emulgeo*, to drain out, in turn from *e.* out, and *mulgeo*, milk. (Rickard) A combination of water and oily material made misc'ble with water through the action of a saponifying or other agent. (Bacon)

Enajenada (Mex.). A change of ownership. (Dwight)

Enameled brick. Bricks which are coated on one or more surfaces with a white or colored enamel. (Ries)

Enamel kiln. A kiln for enameling porcelain. (Standard)

Enantiomorphous. Similar in form but not superposable. Said of certain hemihedral crystals. (Webster)

Enargite. A copper sulpharsenide mineral, Cu_3AsS_4. Contains 48.4 per cent copper. (U. S. Geol. Surv.)

En bonanza (Sp. Am.). Said of a mine when it is being worked at a profit. (Halse)

Encampanado (Mex.). A shaft which does not reach the lower level of the mine. (Dwight)

Encampane (Peru). The difference of level between any gallery and the surface. (Halse)

Encapillar (Mex.). To start work in a new gallery. (Dwight)

Encargado (Mex.). A superintendent. (Dwight)

Encaustic tile. Floor tile having a surface pattern of one type of clay and backing of a different one. (Ries)

Enchada (Braz.). A kind of hoe used by gold washers. (Halse)

Encierro (Sp. Am.). Configuration of country which has arrested the flow of water and caused it to deposit auriferous alluvion. (Lucas)

Encina (Sp.). Oak; *E. blanca*, white oak; *E. negra*, black oak. (Dwight)

Encosta (Braz.). Hillsides on which alluvial benches are found. (Halse)

Encroachment (Scot.). Trespass; the area beyond the boundary from which mineral has been abstracted. (Barrowman)

Encubado (Sp.). Tubbing. (Halse)

Encuentro (Sp.). 1. Meeting of two galleries. 2. Meeting another vein that intersects the one on which work is being done. (Halse)

End. 1. (Scot.) A room or working place facing the ends or secondary joints of a seam, *i. e.*, in the line of the main joints (Barrowman). Also called Butt.
2. (Eng.) The inner extremity of a heading or stall. (Gresley)

End bands. Half tile, made by cutting whole tile longitudinally, and used where the roof butts against a vertical surface. (Ries)

End-bump table. A mechanically operated, sloping table by which heavy and light minerals are separated. The end motion imparted to the table tends to drive all minerals up the slope of the table, but a flow of water carries the quartz and other light minerals down faster than the mechanical motion carries them up. The heavy minerals settle to the bottom and finally reach the upper end and are delivered into a proper receptacle. The Gilpin County, Imlay and Golden Gate concentrators are the chief types.

End course; On-end (Scot.). At right angles to, or facing, the end joints. (Barrowman)

Ending (Eng.). An adit driven in a direction with the grain of the coal. (Bainbridge)

End joint; End cleat; Butt cleat. A joint or cleat in a seam about at right angles to the principal or face cleats. (C. and M. M. P.)

Endless-chain haulage. *See* Endless-rope haulage.

Endless-rope haulage. A haulage system using an endless traction rope or chain for transporting cars, either on surface or underground tramways.

Endlichite. A variety of the mineral vanadinite in which the vanadium is partly replaced by arsenic. (Dana)

End lines. The boundary lines of a mining claim which cross the general course of the vein at the surface. If the side lines cross the course of the vein instead of running parallel with it, they then constitute end lines. (King *v.* Amy, etc., Co., 152 United States, p. 228; Last Chance Mining Co. *v.* Tyler Mining Co., 157 United States, p. 696)

When a mining claim crosses the course of the lode or vein instead of being along such lode or vein, the end lines are those which measure the width of the claim as it crosses the lode. (Argentine Mining Co. *v.* Terrible Mining Co., 122 United States, p. 485; U. S. Min. Stat., pp. 145–150)

End of coal. The direction, or section, at right angles to the face; sometimes called the butt. (Raymond)

Endomorph. A crystal of one species inclosed within one of another, as one of rutile in quartz. (Webster)

Endomorphic. Pertaining to, or characteristic of contact metamorphism that takes place within the cooling eruptive rock; resulting from the reaction of the wall rock upon the peripheral portion of an eruptive rock mass. (La Forge)

End-on. Working a seam of coal, etc., at right angles to the cleat, or natural planes of cleavage. (Gresley)

Endosmosis. The transmission of a fluid inward through a porous septum or partition which separates it from another fluid of different density. Opposed to Exosmosis. (Century)

Endosmotic. Of, or pertaining to the flow or diffusion of water or solutions through the invisible pores of a rock inward to fissures. (Power)

Endothermic. Pertaining to a chemical reaction which occurs with absorption of heat. (Webster)

End piece (Corn.). *See* Wall plates.

End plate. *See* Side plates. In timbering, where both a cap and a sill are used, and posts act as dividers, the posts become the end plates. (Sanders, p. 10)

Ends (York). Headings which are driven on the end or end-on. (Gresley)

Enfriar (Mex.). To add to the *torta* substances which reduce cupric to cuprous salts. (Dwight)

En frutos (Sp.). Producing ore. (Halse)

Enganchador. 1. (Sp.) An on-setter. A hooker-on, bottomer. 2. (Peru) An agent who furnishes mine labor on contract. (Halse)

Enganchar. 1. (Sp.) To fasten or hook on the bucket, kibble, etc. 2. (Peru) To engage miners. (Halse)

Enganche (Sp.). Attaching cars, wagons, etc. to haulage or hoisting ropes or chains. (Halse)

Engine. 1. Any of numerous machines by which physical power is applied to produce a desired physical effect, especially one for converting a physical force, as heat, into mechanical power. (Webster)
2. (Eng.). A collier's term for engine-house or building, arching, etc., within which a steam engine is fixed. (Gresley)

Engine barrel (Scot.). A large water barrel used in sinking shafts. (Barrowman)

Engineer. 1. One versed in any branch of engineering, as a civil, mining or electrical engineer, and who applies creative effort to the solution of problems. 2. One who carries through an enterprise by skillful or artful contrivances; an efficient manager. 3. Any one who manages or runs any stationary engine or locomotive; an engine driver. The term engineman is used by the U. S. Department of Labor in preference to engineer, the latter being defined as under 1, above.

Engine keeper (Scot.). A brakeman. (Gresley)

Engineman (Eng.). One who works a winding, hauling, fan, pumping or other engine. (Gresley). *See* Engineer, 3.

Engine pit (Eng. and Scot.). A shaft used entirely for pumping purposes. (Gresley)

Engine plane. 1. (Eng.) An underground way, either level or dipping inbye or outbye, or both (undulating), along which the cars are conveyed to and from the workings by engine power. *See* Endless chain; Endless rope; Main rope; Tail rope. (Gresley)
2. A passageway having a steep grade along which cars are raised and lowered by a rope attached to an engine; a plane. In Arkansas, limited to planes down which coal is lowered. When the coal is hoisted, the plane is known as a slope. (Steel)

Engine road (Scot.). A haulage road worked by engine power. (Barrowman)

Engine seat (Scot.). The platform or foundation to which an engine is fastened. (Barrowman)

Engine shaft. Usually the principal shaft in a mine, and the one at which the hoisting and pumping are done. (Roy. Com.)

Engine tenter (No. Staff.). A brakeman. (Gresley)

Enginewright (Mid.). A practical man, whose duty about a colliery is to inspect the machinery, ropes, and other appliances. (Gresley)

Englacial. Embedded in a glacier, as englacial drift; also traversing the body of a glacier, as an englacial stream. (Webster)

Englacial-till. *See* Till.

English cupellation. A method of refining silver in which the characteristics are: A small reverberatory furnace with a movable bed and a fixed roof, and the fact that the bullion to be cupelled is charged gradually and the silver refined in the same furnace where the cupellation is carried on. (Hofman, p. 518)

English furnace. A small furnace for the distillation of zinc. The English furnaces differ from other types by distilling the zinc *per descensum* instead of *per ascensum*. (Ingalls, p. 390)

English method. A method of smelting lead ore in which the characteristics are: A large charge of lead ore, a quick roasting, a high temperature throughout and the aim to extract all the lead in the reverberatory. The hearth inclines toward the middle of one of the sides, the lead collects in the furnace and is tapped at intervals into an outside kettle. (Hofman, p. 95)

English process.. In copper smelting, the process of reduction in a reverberatory furnace, after roasting, if necessary. (Raymond)

English salts. Epsom salts. (Webster)

English zinc-furnace. A furnace in which zinc is reduced and distilled from calcined ores in crucibles. (Raymond)

Engorgement. The clogging of a furnace. *See also* Scaffold, 2. (Raymond)

Engranar (Sp.). To throw into gear. (Dwight)

Engrasadura (Mex.). A grease-cup. (Dwight)

Enhydrite. A mineral (as nodules of chalcedony) having cavities containing water. (Standard)

Enhydrous. Containing water; having drops of included fluid; as, enhydrous chalcedony. (Standard)

Enjalma (Sp.). A kind of pack saddle. (Halse)

Enmaderado (Sp.). Timbering; casing. (Lucas)

Enrichment. The action of natural agencies which increases the metallic content of an ore. Secondary sulphide enrichment refers to the formation of new sulphide minerals which contain a larger percentage of the metals. (Farrell)

Enriquecimiento (Sp.). Enrichment of veins. (Halse)

Enrockment. A mass of large stones thrown into water to form a base, as for piers, breakwaters, etc. (Webster)

Ensalmorar (Mex.). To add salt. (Halse)

Ensalmoro (Mex.). The addition of salt to the *torta*. (Dwight)

Ensanchar (Sp.). 1. To enlarge a bore hole. 2. (Colom.) *E. el hilo*, to cut down the soft wall of a lode for the purpose of widening a drift. (Halse)

Ensancharse (Mex.). The widening of a vein. (Dwight)

Ensayador (Sp.). An assayer. (Dwight)

Ensayar (Sp.). To assay. (Dwight)

Ensaye (Sp.). 1. Assay. 2. Assay office (Dwight)
3. In gold washing, a trial made by a pan. In the *patio* process a test of the *torta*. (Halse)

Enstatite. 1. A magnesium silicate mineral, $MgSiO_3$. (Dana) 2. The variety of orthorhombic pyroxene with less than 5 per cent FeO. It is largely used as a prefix to the names of rocks that contain the mineral. (Kemp)

Entblössen (Ger.). Uncovering a lode. (Davies)

Entibación (Sp.). Timbering of mines; walling. (Lucas)

Entibador (Sp.). A timberman. (Halse)

Entibar (Sp.). To timber a mine or any part thereof. (C. and M. M. P.)

Entibo (Sp.). A prop or stay. (Halse)

Entoölitic. Oölitic structure formed by filling small globular spaces after the manner of a secretion. Opposed to Extoölitic. (Power)

Entrada (Sp.). Entrance to a mine. (Halse)

Entresuelo (Mex.). Gallery between two levels (Dwight). An intermediate level.

Entromparse (Mex.). To form a "nose" of slag in the blast furnace. (Halse)

Entry. 1. In coal mining a haulage road, gangway, or airway to the surface. 2. An underground passage used for haulage or ventilation, or as a manway. *Back entry*, the air course parallel to and below an entry. Distinguished from *straight entry*, *front entry*, or *main entry*. *Dip entry*, an entry driven down hill so that water will stand at the face. If it is driven directly down a steep dip it becomes a *slope*. *Gob entry*, a wide entry with a heap of refuse or gob along one side. *Slab entry*, an entry which is widened or *slabbed* to provide a working place for a second miner. *Double-entry*, a system of opening a mine by two parallel entries; the air current is brought into the rooms through one entry and out through the parallel entry or air course. *Cut-off-entry*, an entry driven to intersect another and furnish a more convenient outlet for the coal. *Single entry*, a system of opening a mine by driving a single entry only, in place of a pair of entries. The air current returns along the face of the rooms, which must be kept open. *Triple-entry*, a system of opening a mine by driving three parallel entries for the main

entries. *Twin-entry*, a pair of entries close together and carrying the air current in and out, so laid out that rooms can be worked from both entries. Also called Double entry. (Steel)

3. (Scot.) The beginning of a lease. (Barrowman)

Entryman. 1. A miner who works in an entry. (Steel)

2. One who enters upon public land with intent to secure an allotment under homestead, mining, or other laws. (Webster)

Entry stumps. Pillars of coal left in the mouths of abandoned rooms to support the road, entry, or gangway until the entry pillars are drawn. In Arkansas these pillars are called Entry stumps even when the rooms are first driven, before any pillars are pulled or the rooms abandoned. (Steel)

Entucar (Colom.). To overfeed a stamp mill. (Halse)

Envainado (Mex.). Lost or left to one side (as a vein). (Dwight)

Eo. In geology, indicating the dawn or earliest phase of an epoch, as Eocene. (Standard)

Eocene. In the usage of the U. S. Geological Survey, the earliest of the epochs into which the Tertiary period is divided; also the series of strata deposited at that time. (La Forge)

Eolation. The process by which wind modifies land surfaces, both directly by transportation of dust and sand, and by the work of sand blasts, and indirectly by wave action on shores; eolic gradation. (Standard)

Eolian. (Formerly spelled aeolian.) Of, relating to, formed by, or deposited from the wind or currents of air. (La Forge)

Eolian marble. A name given by Hitchcock to the crystalline granular limestones of Mount Eolus, in Vermont. (Merrill)

Eon; Aeon. A period of existence; an age; an infinite space of time. The term is used by some geologists to denote any one of the grand divisions of geological time. (Webster)

Eopaleozoic. The earlier portion of Paleozoic time, including the Cambric and the siluric. (Standard)

Eorhyolite; Eobasalt; etc. A series of names proposed by O. Nordenskjoeld for the older equivalents of the rhyolites, basalts, etc. The terms are practically equivalent to apo-rhyolite, apobasalt, etc., but the latter have priority. (Kemp)

Eozoic. Pre-Cambrian; pre-Paleozoic. Formerly applied to the rocks now included in the Archean and Algonkian systems and the corresponding geologic periods, being intended to supplant Azoic when it was learned that the Azoic rocks contain some fossil remains. (La Forge)

Epeirogenic. Of, or pertaining to, causing, or designating the rising or sinking of extensive tracts of the earth's crust. (Webster)

Epeirogeny. The deformation of the crust of the earth by which the broader features of relief, such as continents, ocean basins, and the greater plateaus, are formed. *See* Diastrophism. (Webster)

Ephemeral stream. A stream which flows in direct response to precipitation. (Meinzer)

Ephemeris. A publication giving the computed places of the heavenly bodies for each day of the year, with other numerical data (Webster). An astronomical almanac.

Epicenter. That part of the earth's surface directly above the origin of an earthquake. (La Forge)

Epiclastic. Consisting of the consolidated detritus of preëxistent rocks. (Standard)

Epicontinental. Situated upon a continental plateau or platform, as an epicontinental sea. (La Forge)

Epicrystalline. Both sedimentary and crystalline in character: said of strata. (Standard)

Epidiabase. A name proposed by Issel as a substitute for epidiorite because believed to be more appropriate. (Kemp)

Epidiorite. A name applied to dikes of diabase, whose augite is in part altered to green hornblende. The name was coined before it was understood that the hornblende was secondary in this way. It was first applied by Gümbel in 1879 to a series of narrow dikes that cut Cambrian and Ordovician strata in the Fichtelgebirge. The name emphasizes their age as later than the typical pre-Cambrian diorites, but its significance has been expanded in later years. (Kemp)

Epidosite. Rocks largely formed of epidote. The epidote seems generally to be produced by the reactions of feldspar and bisilicates upon each other during alteration. (Kemp)

Epidote. A basic orthosilicate of calcium, aluminum, and iron, $H_2O.4CaO.3(Al,Fe)_2O_3.6SiO_2$ (U. S. Geol. Surv.). The name of this mineral is often prefixed to the names of rocks containing it. As a rule, the presence of epidote indicates the advance of alteration. (Kemp)

Epidotization. The production of epidote in a rock by metamorphism. (Webster)

Epigene. 1. Formed, originating, or taking place on the surface of the earth. 2. Foreign. Said of forms of crystals not natural to the substances in which they are found. *Compare* Pseudomorph. (Webster)

Epigenesis. Change of the mineral character of a rock due to outside influences. *Compare* Metamorphism (Webster). As applied to ore deposits, *epigenetic* deposits are younger than the country rock containing them. (Vogt)

Epiphesis. *See* Apophysis.

Epoch. Generally, that part of geologic time during which a formation or group of strata was deposited: used by the U. S. Geological Survey indifferently as the time equivalent of a series or a group, but restricted by the International Congress to a division of a period, hence the time equivalent of a series. (La Forge)

Epsomite. A mineral composed of hydrous magnesium sulphate, $MgSO_4+7H_2O$. (U. S. Geol. Surv.)

Epsom salt. Same as Epsomite.

Equivalent. 1. In geology corresponding in geologic age or stratigraphic position; said of formations, etc. (La Forge)

2. A term applied to grains of ore or vein-stuff of varying diameters and density, which fall through water at an equal velocity (Hunt). Usually used in the plural.

Era. In geology, in general a large division of geologic time; specifically, a division of geologic time of the highest order, comprising one or more periods. The eras now generally recognized are the Archeozoic, Proterozoic, Paleozoic, Mesozoic, and Cenozoic. (La Forge)

Erbhefste (Ger.) The deepest part of a mine. (Davies)

Erbium. A metallic element of the rare earth group. Symbol, Er; atomic weight 167.7. (Webster)

Erg. The amount of work done by one dyne working through a distance of one centimeter. One foot-pound is equal to 13,560,000 ergs. (Webster)

Erlan; Erlanfels. A name proposed by Breithaupt for metamorphic rocks, which consist essentially of augite, *i. e.*, augite schists. The name is derived from the iron furnace at Erla, near Crandorf, Saxony. (Kemp)

Erles (Eng.). Earnest money. (Bainbridge)

Erodible. Yielding more or less easily to erosive action; as, underlying easily erodible limestones. (Standard)

Erosion. The group of processes whereby earthy or rock material is loosened or dissolved and removed from any part of the earth's surface. It includes the processes of weathering, solution, corrasion, and transportation. The mechanical wear and transportation are effected by running water, waves, moving ice, or winds, which use rock fragments to pound or grind other rocks to powder or sand. (Ransome)

Erosion surface. A land surface shaped by the disintegrating, dissolving, and wearing action of streams, ice, rain, winds, and other land and atmospheric agencies. (Ransome)

Erosive. 1. Having the property of eating away or corroding; corrosive. 2. Wearing away; acting by erosion. (Century)

Erratic. A name often given to transported bowlders (Roy. Com.). Loose gravel and stones on the earth's surface, including what is called drift. (Webster)

Erratic blocks (Eng.). *See* Erratic. Rounded erratic blocks are called bowlders.

Erubescite. A synonym for Bornite. (A. F. Rogers)

Eruption. In geology, the emission or ejection, at the earth's surface, through a crater, pipe, or fissure, of such material as lava, heated water, gases, mud, stones, and dust; characteristic of volcanoes and geysers and usually more or less sudden, violent, and explosive. (La Forge)

Eruptive. The name given to rocks that have burst through other rocks in a molten state, or that have been thrust up bodily (Davies). The name ought properly to be only applied to effusive or volcanic rocks, but it is often used as a synonym for igneous. (Kemp)

Eruptive vein. A vein filled by eruption of igneous matter from below. (Standard)

Erythrite; Cobalt bloom. A hydrous cobalt arsenate, $Co_3As_2O_8.8H_2O$. Found in the oxidized parts of cobalt and arsenic-bearing veins. (U. S. Geol. Surv.)

Escala (Sp.). 1. Ladder. 2. *E. movil*, a man engine. 3. In drafting, a scale. (Halse)

Escalera (Mex.). A ladder, generally made of notched poles; *E. de barrotes*, mine ladder with rounds; *E. de muescas*, mine ladder or notched timber. (Dwight)

Escalón (Sp.). 1. A step, round, or rung. 2. A stope; *E. de banco*, an underhand stope; *E. de cielo*, an overhand stope. 3. Scale. (Halse)

Escantillón (Mex.). A wooden ruler used by timbermen; pattern; gage. (Dwight)

Escape (Eng.). A second or additional shaft by which the men may get out of the mine in case of accident to the other shafts. Also an Upcast; Escape pit; Escape way. (Gresley)

Escape way. An opening through which the miners may leave the mine if the ordinary exit is obstructed. (Steel)

Escar. *See* Esker.

Escarcha (Peru). Native silver in thin plates. (Dwight)

Escarpment. A cliff or relatively steep slope separating level or gently sloping tracts. (La Forge)

Eschka's mixture. Magnesium oxide and sodium carbonate. (Liddell)

Escogedor (Braz. and Colom.). An ore picker or sorter. (Halse)

Escoger (Sp.). To pick or sort ore. (Halse)

Escombrera (Sp.). A place where waste from the mine is thrown; a dump. (Halse)

Escombros. 1. (Fr. Guiana). In placer mining, an overburden of red and yellow variegated clays containing pebbles. (Halse)
2. (Mex.). Waste rock. (Dwight)

Escoria (Sp.). 1. Slag or cinders. 2. A spongy lava. (Halse)

Escorial. 1. (Sp.-Am.). A pile or dump of slag, or a yard containing such dumps. (Webster)
2. An exhausted mine. (Standard)

Escorificador (Mex.). Scorifier, in assaying. (Dwight)

Escritura (Sp.). A deed, instrument, bond, or contract. (Halse)

Escrow. A deed, bond, or other written engagement, delivered to a third person to be delivered by him to the grantee only upon the performance or fulfillment of some condition. (Webster)

Escuadra (Mex.). A change of direction of 90°; square. (Dwight)

Escuela de minas (Sp.). A school of mines. (Halse)

Escurrir (Sp.). To leak; to drip; to drain off. (Dwight)

Esker; Escar; Eskar. A narrow ridge of gravelly or sandy drift, deposited by a stream in association with glacier ice. Eskers were formerly called Serpentine kames. (Webster)

Eslabón (Mex.). A link of a chain. (Dwight)

Esmanil (Sp.). Blende. (Halse)

Esmeralda (Sp.). Emerald. (Dwight)

Esmeril (Sp.) Emery. (Dwight)

Espato (Sp.). Spar; *E. fluor*, fluorspar, bluejohn; *E. calizo*, calcite; *E. de hierro*, siderite; *E. de Islandia*, Iceland spar; *E. de manganeso*, rhodocrosite; *E. pesado*, heavy spar; barite. (Halse)

Espátula (Sp.). Spatula. (Dwight)

Espejado (Peru). Galena. (Dwight)

Espejo (Colom.). A slickenside. (Halse)

Espejuelo (Sp.). 1. A transparent piece of talc. 2. Mica. 3. Selenite. 4. (Mex. and Chile) Calcite. 5. (Hid., Mex.) Galena in large crystals, also blende in large crystals. 6. (Mex.) A slickenside. 7. (Peru) Barite. (Halse)
8. (Peru) Lead carbonate mixed with galena and gray copper. (Dwight)
9. (Mex.) A mineral gangue, with a faintly reflecting surface. (C. and M. M. P.)

Espeque (Mex.). A handspike; wooden lever; the long arm or lever in machinery moved by animal power. (Dwight)

Esperanza classifier. A classifier of the free-settling type in which the settled material is removed by dragging it up an inclined plane by means of a continuous belt of flat blades or paddles. It is continuous in its operation. (Liddell)

Espesor (Sp.). Thickness of a vein or bed. (Halse)

Espetón (Mex.). The tapping bar of a smelting furnace. (Dwight)

Espinguetta (Sp.). A blasting needle. (Halse)

Espoleta (Mex.). The blasting charge for a small blast; primer or blasting fuse. (Dwight)

Esponja. 1. (Mex.) Spongy bullion, after retorting and before melting. (Dwight)
2. (Sp.) A network of narrow ferruginous veins. (Halse)

Esporton (Sp.). A large basket (Halse). *See also* Espuerta.

Espuela (Mex.). Additional quantity of copper sulphate required in the *torta*, when not enough was added at first. (Dwight)

Espuerta (Spain). A large basket attached to an endless wire rope for removing sulphur from the mines. The baskets are 10 to 12 feet apart. (Halse)

Espuma (Sp.). 1. Scum, froth, foam. 2. Gossan. 3. Magnesia. 4, Dross of metals. 5. (Colom.) *Oro de E.*, float gold. (Halse)

Esquisto (Sp.). Shale; schist or slate. (Halse)

Essential. In petrology, necessarily present in any variety of rock, being required by the definition of the variety: said of some minerals in a rock. (La Forge)

Essexite. A name derived from Essex County, Mass., and applied to a granular igneous rock intermediate between the nephelite-syenites, the diorites, and the gabbros, which contain labradorite, orthoclase, and more or less nephelite or sodalite, together with augite, biotite, barkevicite, olivine, and apatite. (Kemp)

Essonite. A cinnamon-colored variety of garnet; called hyacinth when used as a gem, though the term more properly belongs to zircon. (U. S. Geol. Surv.)

Estaca (Sp.). 1. A stake. *E. fija*, a post driven into the ground from which the mining claim was originally measured. 2. *Estacas*, divisions or partitions made in mines. 3. (Colom.) A person who works a mine solely to retain title; the owner of a mine who pays the tax but does not work it. 4. Lagging. (Halse)

Estacada (Mex.). The lagging of the sides of a shaft in open-crib timbering. (Halse)

Estacar (Sp.). To stake out a claim, road, etc. (Halse)

Estación. 1. (Sp.) A surveyor's station or point. 2. (Colom.) A length of 100 feet in lining out a railroad. 3. Season (of the year). (Halse)

Estadía (Mex.). A leveling rod. (Dwight)

Estado (Peru). A measure of length ($2\frac{2}{3}$ *varas*). Approximately a fathom. (Dwight)

Estalactita (Sp.). A stalactite. (Dwight)

Estalagmita (Sp.). A stalagmite. (Dwight)

Estampillas (Mex.). Stamps with which the Government taxes are paid; postage stamps. (Dwight)

Esthanho (Port.). Tin. (Halse)

Estaño (Sp.) 1. Tin. 2. Tin ore as cassiterite; *E. de grano*, *E. de placeres*, stream tin. 3. Tin concentrate. *See* Barrilla, 3. 4. *E. de escoria*, slag tin. (Halse)

Estanque (Mex.). A tank; reservoir. (Dwight)

Este; Oriente (Sp.). East. (Dwight)

Esteatita (Sp.). Steatite or soapstone. (Halse)

Esteos (Mex.). Vertical beams supporting the pulley of a hoist. (Dwight)

Estereis (Braz.). 1. Veinstone; mattrix. 2. Barren rock. (Halse)

Esterellite. A name given by A. Michel-Levy to a variety of diorite-porphyry from Esterel, France. The rock shows some peculiarities of chemical composition which have given it special interest in discussions relating to differentiation. (Kemp)

Estéril (Sp.). 1. Veinstone. 2. Barren rock. Often used in plural. (Halse)

Estibnita (Sp.). Stibnite. (Dwight)

Estopa (Mex.). Cotton waste. (Dwight)

Estoraque (Mex.). Resin; yellow zinc-blende. (Dwight)

Estovers (Eng.) Necessary supplies, especially wood which a tenant is allowed to take from the landlord's premises, for the necessary fuel, repairs, etc., for himself. (Webster)

Estrada (Port.). A road; *E. de ferro*, a railroad. (Halse)

Estratificación (Sp.). Stratification. (Dwight)

Estrato (Sp.). Stratum; layer; bed. (Halse)

Estrechamiento del filón (Sp.). Pinching; pinching out. (Lucas)

Estrellarse la veta (Peru). To "peter out," or become lean, especially by scattering. (Dwight)

Estriada (Sp.). Striated. (Dwight)

Estribo. 1. (Sp.). Stirrup. 2. (Mex.) Hogback in a mountain; a spur. (Dwight)

Estrujar (Sp.). To press or squeeze amalgam. (Halse)

Estrujón (Mex.) A second collection of amalgam, generally very pasty. (Dwight)

Estuarine. Of, pertaining to, or formed in an estuary. (Webster)

Estuary. A bay, as the mouth of a river, where the tide meets the river current. A frith. (Webster)

Estufa. 1. A stove or tubular apparatus for heating air for hot blast. 2. (Mex.) In the *patio* process, a chamber with flues under the floor for heating the *torta*. (Halse)

Estufa amalgamación (Sp.). A modification of the *patio* process, using heat. (Raymond). *See* Estufa, 2.

Etch figure. A marking, usually minute pits, produced by a solvent on a crystal surface; the form varies with the species and solvent but conforms to the symmetry of the crystal, hence revealing its molecular structure. (Webster)

Etching. A process of engraving in which the lines are produced by the action of an acid or mordant (Century). Used also in studying the composition and structure of metals and crystals.

Éter (Sp.). Ether. (Dwight)

Ethane. A colorless, gaseous compound (C_2H_6), of the paraffin series contained in the gases given off by petroleum and in illuminating gas. (Standard)

Ether. 1. A hypothetical medium of extreme elasticity and supposed to be diffused throughout all space as well as among the molecules of which solid bodies are composed and to be the medium of the transmission of light and heat. 2. A highly volatile inflammable, light, mobile, colorless liquid used as an anesthetic and solvent. (Century)

Ether axes. *See* Axes of elasticity.

Ethmolith. A plutonic mass of rock which narrows downwardly. (Daly, p. 88)

Ettle (No. of Eng.). 1. Waste (Gresley). *See* Attle, 1.
2. To intend, appoint, arrange (G. C. Greenwell). *See* Attle, 2.

Ettlings (No. of Eng.). Earnings; wages. (Century)

Euchroite. A vitreous, bright emerald—or leek-green, transparent to translucent hydrous copper arsenate, $Cu_3As_2O_8.Cu(OH)_2+6H_2O$, mineral crystallizing in the orthorhombic system. (Dana)

Euclase. A vitreous, colorless to pale green or blue glucinum-aluminum silicate mineral, $2BeO.Al_2O_3 2SiO_2H_2O$, crystallizing in the monoclinic system. (Dana)

Eucrite. A name given by G. Rose to rocks and meteorites that consist essentially of anorthite and augite. The term is practically obsolete. (Kemp)

Eudiometer. An instrument for the volumetric measurement and analysis of gases. (Webster)

Eudyalite. Essentially a metasilicate of Zr, Fe (Mn), Ca, Na, etc., in red to brown tabular or rhombohedral crystals; also massive (Dana). The name of the mineral is sometimes prefixed to the rare nephelite-syenites that contain it. (Kemp)

Eugranitic. Same as Granitoid. (Standard)

Euhedral. In petrology, bounded by its own crystal faces; automorphic: said of some minerals in a crystalline rock and contrasted with subhedral and anhedral. (La Forge)

Euktolite. A name derived from the Greek words for "desired rock" and given by H. Rosenbusch to one which filled a gap in his classification of rocks. The same rock had been previously named Venanzite. (Kemp)

Eulysite. A name given by Erdmann to rocks interlaminated with the gneisses of Sweden, and consisting of olivine, green pyroxene, and garnet. (Kemp)

Eulytite. A silicate of bismuth, $Bi_4Si_3O_{12}$, occurring usually in minute dark brown or grayish tetrahedral crystals. (Dana)

Euosmite. An amorphous, brownish yellow, brittle, oxygenated hydrocarbon from clefts in brown coal at Baiershof, near Thumsenreuth, in the Fichtelgebirge; it has a specific gravity of 1.2 to 1.5, and dissolves easily in alcohol and ether. (Bacon)

Euphotide. The name chiefly used among the French for gabbro. It was given by Hauy, and is derived from the Greek words for well and light, in allusion to its pleasing combination of white and green. (Kemp)

Euphyllite. A white sodium-potassium mica that is intermediate between paragonite and muscovite. (Standard)

Eurite. Used among the French as a synonym for felsite, but also applied to compact rocks chiefly feldspar and quartz, such as some granulites. The name was first given by Daubisson to the groundmass of porphyries, because of their easy fusibility compared with hornstone or flint. (Kemp)

Europium. A metallic element of the rare-earth group, discovered in 1896. Symbol Eu; atomic weight, 152.0. (Webster)

Eustatic. Pertaining to or designating a land area which undergoes neither elevation nor depression. (Webster)

Eutaxitic. A general name for banded volcanic rocks. The banding is due to the parallel arrangement of portions of the rock that are contrasted either in mineralogy or texture (Kemp). Contrasted with Ataxitic.

Eutectic. Of maximum fusibility; said of an alloy or solution having the lowest melting point possible with the given components. (Webster)

Eutomous. In mineralogy, having distinct cleavage; cleaving readily. (Century)

Euxenite. In mineralogy, a niobate and titanate of yttrium, erbium, cerium and uranium. (Dana)

Evansite. In mineralogy, a massive, colorless to milk white, hydrous aluminum phosphate, $2AlPo_4.4Al(OH)_3+12H_2O$. (Dana)

Evaporar (Colom.). To retort amalgam. (Halse)

Evaporate. To convert into vapor, usually by means of heat; vaporize; also, to remove and dissipate by this process. (Standard)

Evaporating dish, or pan. A shallow dish, of glass, porcelain, or metal used in processes requiring evaporation.

Evaporation gage. A graduated vessel of glass for determining the rate of evaporation of a liquid placed in it, in a given time and exposure. (Century)

Everlasting lamps (No. of Eng.) Natural jets of fire damp or small blowers which continue to burn as long as gas is given off. (Gresley)

Everson process. An oil flotation process involving the use of from 6 to 20 per cent oil and usually less than 1 per cent acid. (Megraw, p. 8)

Excambion (Scot.). An exchange of land or minerals. (Barrowman)

Excavar (Sp.). To excavate; to dredge. (Halse)

Excavation. 1. In engineering, an open cutting, as in a railway in distinction from a tunnel. 2. The act of digging out of material (earth, rock, etc.) by any means so as to form a cavity. (Century)

Excavator. A steam or electric power-machine for removing earth, rock, etc., as a steam shovel, dredge, etc.

Excessive location. A mining claim in excess of the width allowed by law. (U. S. Min. Stat., pp. 90, 538–539)

Exempted claim. A claim which, by the mining laws has been allowed to remain idle, and for which an exemption certificate has been obtained (Morine). Common, especially in Canada and Australia.

Exfoliate. 1. To peel off in concentric layers, as some rocks do by weathering. In this way the concretionary

structure of some kinds of greenstones is well brought out, the weathered surface showing rounded masses with the successive spherical layers falling off. (Roy. Com.)
2. To swell up and open into leaves or plates like a partly opened book. (George)

Exhalation. 1. Any vapor or gaseous matter arising from substances or surfaces exposed to the atmosphere. (Power)
2. In geology, any gas or vapor formed beneath the surface of the earth and escaping either through a conduit or fissure or from molten lava or a hot spring; an emanation. (La Forge)

Exhaust fan. A fan used for creating a draft by the formation of a partial vacuum in contradistinction to a blower. (Century)

Exhaustion. 1. In chemistry, the process of completely extracting from a substance whatever is removable by a given solvent. (Century)
2. In mining, the complete removal of ore reserves.

Exhibición (Mex.). Exhibition; assessment. (Dwight)

Exomorphic. A descriptive term for those changes which are produced by contact-metamorphism in the wall rock of the intrusion; the antithesis of endomorphic. (Kemp)

Exosmosis. *See* Endosmosis.

Exothermic. Pertaining to a chemical reaction which occurs with the evolution of heat. (Webster)

Exotic. That which has been introduced from other regions. (Power)

Expander. A device for expanding the end of a tube, in a tube-plate or as a casing in a well.

Expansion bit. A drill bit that may be adjusted for holes of various sizes.

Expansion joint. A device used in connecting up long lines of pipe, etc., to permit linear expansion or contraction as the temperature rises or falls. (Nat. Tube Co.)

Expansion loop. Either a bend like the letter U or a coil in a line of pipe to provide for expansion or contraction. (Nat. Tube Co.)

Expansion ring. A hoop or ring of U-section used to join lengths of pipe so as to permit of expansion. (Nat. Tube Co.)

Expansion tamping. A term used in quarrying when the drill hole above the powder charge is filled for several inches with hay, tow, or the like, followed by several inches of clay lightly tamped and finally by well-packed stemming. (Gillette, p. 442)

Expert. One who has special skill or knowledge in a particular subject, as a science or art, whether acquired by experience or study; a specialist (Webster). Often applied to a mining engineer, as a mining expert.

Explode. To burst or expand violently and noisily, as gunpowder explodes, or as a boiler explodes (Webster), or as an explosion of gas, or coal dust.

Exploder. A cap or fulminating cartridge, placed in a charge of gunpowder or other explosive, and exploded by electricity or by a fuse. Also called Detonator. (Raymond)

Exploit. 1. To make complete use of; to utilize. 2. To make research or experiment; to explore. 3. To employ or utilize selfishly, without regard to right or justice. (Century)

Exploitation. The extraction and utilization of ore. Often confused with "exploration." (Rickard)

Exploración (Sp.). 1. Exploration; prospecting. 2. A prospect. (Dwight)

Explorar (Sp.). To prospect; to explore. (Halse)

Exploration. 1. The work involved in looking for ore. Often confused with "exploitation." (Rickard)
2. A mode of acquiring rights to mining claims. (Collins *v.* Bubb, 73 Fed. Rept., p. 739)

Exploring mine (Scot.). A working place driven ahead of the others to explore the field (Barrowman). A prospect.

Explosion. 1. A sudden ignition of a body of fire damp, coal dust, or explosives, as powder, dynamite, etc. (Steel)
2. The act of exploding; rapid combustion, decomposition, or other similar process resulting in a great and sudden development of gases, and consequent violent increase of pressure, usually accompanied by a loud report. 3. A sudden breaking apart, shattering or bursting in pieces by internal pressure, as that of gas or steam. (Standard)

Explosion proof. The term "explosion-proof casing or inclosure" means an inclosure that is so constructed and maintained as to prevent the ignition of gas surrounding it by any sparks, flashes, or explosions of gas that may occur within such inclosure. (H. H. Clark, U. S. Bur. Mines)

Explosion-proof motors. The Bureau of Mines has applied the term "explosion proof" to motors constructed so as to prevent the ignition of gas surrounding the motor by any sparks, flashes, or explosions of gas or of gas and coal dust that may occur within the motor casing.

Explosions from molten iron. An explosion caused by molten iron escaping and coming in contact with water or wet material. (Wilcox)

Explosion wave. From the French *Onde Explosive*, and coined by Bertholet, signifying that wave or "flame" which passes through a uniform gaseous mixture with a permanent maximum velocity. The rate of the explosion wave is a definite physical constant for each mixture; the explosion wave travels with the velocity of sound in the burning gas which itself is moving rapidly forward *en masse* in the same direction, so that the explosion wave is propagated far more quickly than sound travels in the unburned gas. (H. B. Dixon, First Series, Brit. Coal-Dust Experiments, 1908–09, p. 150)

Explosive. Any mixture or chemical compound by whose decomposition or combustion gas is generated with such rapidity that it can be used for blasting or in firearms, for example, gunpowder, dynamite, etc.

Explosive oil. Nitroglycerin. (Brunswig, p. 295)

Explosive, permissible. *See* Permissible explosive.

Explosive volcano. A volcano characterized by periodic eruptions of great violence and explosive force. (Standard)

Explotación de minas (Sp.). Mining; winning; working. (Lucas)

Explotar (Sp.). To exploit, work, or win; *E. una mina*, to work a mine. (Halse)

Exposure. In geology, the condition or fact of being exposed to view, either naturally or artificially; hence, also, that part of a rock, bed, or formation which is so exposed; an outcrop. (La Forge)

Expropiar (Sp.). To expropriate. (Dwight)

Extencteur (Fr.). An apparatus which discharges onto a burning mass of coal, water charged with carbonic acid under a very high pressure. (Gresley)

Extinction. In optical mineralogy, the arresting of a beam of light by polarization, by the imperfect transparency of the medium, or otherwise. (Century)

Extinction angle. The angle through which a section of an anisotropic crystal must be revolved from the direction of a known crystallographic plane to that of maximum darkness under the polariscope. (Dana)

Extinction direction. In optical mineralogy, the position of extinction. (A. F. Rogers)

Extoölitic. An oölitic structure built up around a core from within outward; a small concretion. Opposed to entoölitic. (Power)

Extracción (Sp.). 1. Extraction; winding, or hoisting. 2. Output, or production, as of a mine. (Halse)

Extraction. A designation for that part of the metallic content of the ore which is obtained by a final metallurgical process, as the extraction was 85 per cent. *Compare* Recovery.

Extracto (Sp.). Extract; *extractos* (Mex.), a summary of an application for a mining concession, published on the bulletin board; excerpts. (Halse)

Extractor. One who or that which extracts; as a drill-extractor. (Standard)

Extractor box. *See* Zinc-box.

Extra dynamite. The present designation of those explosives consisting of nitroglycerin, other explosive ingredients and an active base absorbent. They are more easily affected by water than straight dynamite, but give off less noxious fumes, are less sensitive to blows, and they ignite less easily from sparks. (Du Pont)

Extraer. 1. (Sp.) To extract, wind or hoist. 2. To pump. (Halse)

Extrahazardous. Unusually dangerous: specifically used in insurance in classifying occupational risks, as mining is extrahazardous.

Extralateral. Situated or extending beyond the sides; specifically noting the right of a mine owner to the extension of a lode or vein from his claim beyond the side lines, but within the vertical planes through the end lines. (Century)

Extralateral right. In the United States Mining law, said of the right which one who locates on the public domain, a claim in which a vein comes to an apex, has to parts of the vein beyond the planes passed through the side lines of his claim, but lying within vertical cross planes passed through the end lines. (Webster; also, U. S. Min. Stat., pp. 133–159)

Extralite. An explosive mixture of ammonium nitrate, potassum chlorate, and naphthalene. (Webster)

Extramorainic. Situated outside of or beyond the terminal moraine of a glacier. (Century)

Extraordinary ray. That ray of polarized light which, in doubly refracting crystals, has a variable value and therefore does not obey the sine law. (Dana)

Extraviado (Mex.). Astray in a mine. (Dwight)

Extrio (Sp.). Hand picking. (Lucas)

Extrusive. A term applied to those igneous rocks which have cooled after reaching the surface (Ries). A synonym for Effusive, and much used in America. (Kemp)

Exudation-vein. *See* Segregation-vein.

Exude. 1. To discharge gradually through pores or small openings, as liquid, gum (oil or gas); give off or out by slow percolation; as the pines exude pitch. 2. To ooze or flow slowly forth through pores, cracks, or gashes; as gums exude from wounded trees, or gas (and oil) exudes from the underlying formation. (Standard)

Eye. 1. The top of a shaft. 2. The opening at the end of a tuyère of a blast furnace, opposite the nozzle. 3. The hole in a pick or hammer head which receives the handle. (Raymond)
4. The central or intake opening of a fan.

Eye of a shaft. *See* Eye, 1.

Eyestone (Eng.). A variety of agate which shows in the center, a spot or spots more highly colored than the concentric layers. (Page)

Ezteri (Sp. Am.). A green jasper with reddish veins; a kind of bloodstone. (Halse)

F.

Faber du Faur furnace. A cubical crucible furnace built into cast-iron framework, mounted on trunnions in order that the furnace may be turned over and the contents emptied. Used in the desilverization of zinc crusts. (Hofman, p. 485.)

Fabian system. *See* Freefall. May be described as the father of freefall drilling systems, all others having originated from it, although it is not now used in its original form. (Mitzakis)

Fabric. In petrology, that factor of the texture of a crystalline rock which depends on the relative sizes, the shapes, and the arrangement of the component crystals. (Iddings)

Face. 1. In any adit, tunnel, or stope, the end at which work is progressing or was last done. 2. The *face of coal* is the principal cleavage-plane at right angles to the stratification. Driving on the face is driving against or at right angles with the face. (Raymond)
3. A point at which coal is being worked away, in a breast or heading; also working face. (Gliebas v. Spring Valley Coal Co., 159 Illinois App., p. 90)
4. The surface exposed by excavation. The *working face, front,* or *forehead,* is the face at the end of the tunnel heading; or at the end of the full-size excavation. (Simms)
5. A cleat or back. 6. (Lanc.) To place a full tub in position for being lowered on an incline. (Gresley)
7. One of the flat, more or less smooth, surfaces of a crystal. (A. F. Rogers)

Face airing (No. of Eng.) That system of ventilation in which all of the air sweeping through the mine, ventilates the working faces and main roads only. (Gresley)

Face cleat. A well-defined joint or cleavage plane in a coal seam. *Compare* Butt cleat. *See* Face, 2.

Face entry. The gallery of a mine driven at right angles with the face cleat of the coal. (Roy) *See also* Face, 2.

Face-on. When the face of the breast or entry is parallel to the face cleats of the seam. (Steel). *See* Face, 2.

Face slip. The front slip of a coal seam. (Roy)

Facet. The polished surface of a cut-stone. (A. F. Rogers)

Face wall. A wall built to sustain a face cut into the earth in distinction to a retaining wall, which supports earth deposited behind it. (C. and M. M. P.)

Facies. Variety; especially applied to an igneous rock that in some respects is a departure from the normal or typical rock of the mass to which it belongs. Thus a mass of granite may grade into porphyritic *facies* near its borders. (Ransome)

Facing. 1. (Aust.) The main vertical joints often seen in coal seams; they may be confined to the coal, or continue into the adjoining rocks (Power). *See also* Cleat.
2. Powdered coal or charcoal applied to the face of a mold or mixed with sand that forms it, to give a fine smooth surface to the casting. (Webster)

Factor. 1. One who makes it his business to sell merchandise or property intrusted to him for that purpose, receiving a commission on the amount of sales; a commission merchant; often in combination with the name of the merchandise; as, coal-*factor*. *Factors* and brokers are both and equally agents, but with this difference: the *factor* is intrusted with the property which is the subject-matter of the agency; the broker is only employed to make a bargain in relation to it. (Standard)
2. One of the several elements, circumstances, or influences which tend to the production of a given result. (Century)

Faddom (Eng.). A fathom, 6 feet, commonly used as a measure by miners. (Hunt)

Faenas. 1. (Sp.) Work; labor; task. 2. (Mex.) Dead work, as putting up an air shaft, or unwatering a mine. (Halse)

Faenero (Braz.). A common laborer. (Halse)

Faenza white. In ceramics, a fine enamel of stannic oxide characteristic of some varieties of majolica-ware. (Standard)

Fagot. *See* Pile, 1 and 2.

Fahlband. A term originally used by German miners to indicate certain bands of schistose rocks impregnated with finely divided sulphides but not always rich enough to work. (Watson, p. 606)

Fahlerz (Ger.). A gray copper ore. Sometimes called Fahl ore.

Fahlite. A variant of Fahlerz. (Chester)

Fahl ore. Same as Fahlerz.

Fahlunite. An altered form of iolite. (Dana)

Fahrenheit. Designating a thermometer scale, on which the freezing point of water is 32° and the boiling point is 212°. To convert Fahrenheit readings to centigrade readings, subtract 32° from the former and then divide by 1.8. (C. and M. M. P.)

Fahrkunst (Ger.). An apparatus for lowering and raising men in a shaft. *See also* Man machine. (Gresley)

Faikes; Faiks; Fakes (Scot.). Fissile sandy shales. (Power)

Failed hole. A drill hole in which dynamite has been loaded and fails to explode. (Cook *v.* Cranberry Furnace, 76 S. E. Rept., p. 473)

Fair-lead. A block, ring, or strip of plank with holes, serving as a guide for the running rigging or for any other rope, to keep it from chafing or fouling (Webster). Originally a nautical term but now also used in dredging.

Fairy stone. 1. (Scot.) A fantastically-shaped calcareous or ferruginous concretion formed in alluvial clays. (Power)
2. A stone arrowhead. (Webster)
3. A fossil sea-urchin or echinite. (Standard)

Faiscador (Mex. and Braz.). A placer miner; gold washer. (Halse)

Faisqueira (Braz.). A place where gold is found; a placer. (Halse)

Faixa (Port.). 1. A band of ore. 2. A belt of rock. (Halse)

Faja (Sp.). 1. A band of mineral in a vein. 2. A band or belt of rock. 3. A horizontal cut in a vein. (Halse)

Fake. 1. (Scot. and Eng.) *See* Faikes. 2. A soft soldering fluid used by jewelers. (Century)

Falda (Sp.). Slope; flank of hill. (Dwight)

Faldeos (Bol.). Ancient gold-bearing alluvial deposits. (Halse)

Falding furnace. A mechanically raked muffle furnace having three hearths with combustion flues under the lowest hearth. (Ingalls, p. 141)

Fall. 1. A mass of roof or side which has fallen in any subterranean working or gallery, resulting from any cause whatever. 2. A length of face undergoing holing or breaking down for loading. 3. (Eng.) To blast or wedge down coal, etc., in the process of working it. 4. To crumble or break up from exposure to the weather; clays, shales, etc., fall. (Gresley) 5. To break down; to collapse. 6. A vertical or sloping descent of flowing water; a waterfall. 7. Descent from a higher to a lower level. (Webster)

Falla. 1. (Mex.). A vein of soft rock at right-angles to drift. (Dwight) 2. (Sp.) A fault; *F. Falsa*, an interruption in a bed or seam; a horse. (Halse)

Fallers (Lanc.). A synonym for Cage shuts.

Falling (Scot. and No. of Eng.). An overlying stratum which falls or comes down as the mineral is extracted from under it. Sometimes called Following. (Barrowman)

Falling stone. A meteorite. (Webster)

Fall line. A line characterized by numerous waterfalls, as the edge of a plateau in passing which the streams make a sudden descent. (Webster)

Fall of ground. Rock falling from the roof into a mine opening (Weed). *See also* Fall, 1.

Falls. Working by falls. A system of working a thick seam of coal by falling or breaking down the upper part after the lower portion has been mined. (Gresley). *Compare* Caving system.

False amethyst. An early name for violet-colored fluorite when cut as a gem. Other colors of the same mineral were called false emerald, ruby, sapphire, or topaz. (Chester)

False bedding. Current bedding. Laminations in sandstone parallel to each other for a short distance, but oblique to the general stratification; caused by frequent changes in the currents by which the sediment was carried along and deposited (Power). *See also* Cross-bedding.

False bottom. 1. A floor of iron placed in a puddling machine. (Davies) 2. (Aust. and Amer.) A bed of drift lying on the top of other alluvial deposits, beneath which there may be a true bottom, or a lower bed of wash resting directly upon the bed rock. (Skinner) 3. A flat hexagonal or cylindrical piece of iron upon which the ore is crushed in a stamp mill. The die. At Clunes, Victoria, Australia, it is called Stamper bed.

False cleavage. A secondary cleavage superinduced on slaty cleavage. (C. and M. M. P.)

False Galena. Sphalerite. (Webster)

False part. A part of a flask used temporarily in forming a mold. (Standard)

False set. A temporary set of mine timber used until work is far enough advanced to put in a permanent set. (Steel)

False stull. A stull so placed as to offer support or reinforcement for a stull, prop or other timber. (Sanders, p. 44)

False superposition. The actual or visible order in which strata lie in any locality in case of overturn, as the older rocks have been thrust over the newer ones. (Standard)

False topaz. A yellow variety of quartz resembling topaz. (Dana)

Falso. 1. (Sp.) False; counterfeit. 2. (Mex.) Treacherous ground. *See also* Flojo. (Halse)

Faulta de explosión (Sp.). Spent shot; misfire. (Lucas)

Faluns. A French term applied to some Tertiary strata, resembling the English crag. (St. John)

Famatinite. A copper-antimony sulphide, $3Cu_2S.Sb_2S_5$, mineral containing 43.3 per cent copper. (U. S. Geol. Surv.)

Famp. 1. (Cumb.) Decomposed limestone, but in some other districts a very fine-grained siliceous bed. (Hunt)
2. (Newc.) Soft, tough, thin shale beds. (Raymond)

Famulia (Peru). A wedge; a gad. (Dwight)

Fan. A revolving machine, to blow air into a mine (pressure fan, blower), or to draw it out (suction fan). (Raymond)

Fancy lump coal. 1. Soft coal from which all slack and nut coal has been removed. 2. (Ark.) Semi-anthracite coal of larger size than grate coal. (Steel)

Fan drift. A short tunnel or conduit leading from the top of the air shaft to the fan. (Steel)

Fanega (Mex.). A variable unit of dry measure, usually 90.815 liters; of superficial measure usually 3.5663 hectares. (Dwight)

Fang. 1. (Scot.) The power of a pump bucket to form a vacuum. Hence a pump has "lost the fang" when so much air passes the bucket that a vacuum can not be made until water is poured on the top of the bucket. (Barrowman)
2. (Derb.) An air course, cut in the side of the shaft or level, or, constructed of wood. (Raymond)
3. (Wales) In the plural, cage shuts. (Century)

Fanging; Fanging-pipes (Eng.). Wooden air-pipes used in mine ventilation (Century). *See* Fang, 2.

Fanner (Scot.). A small portable hand fan (Barrowman). *See* Blow-george.

Fan shaft. 1. A shallow shaft sunk beneath a fan connecting it with the fan drift. 2. The upcast shaft where a fan is in use. (Gresley)

Fan structure. An arrangement of closely folded strata such that the axis planes of the folds dip on each side of a mountain pass or range toward the central-axis plane of the range itself, so that the whole has a structure, as exhibited in cross section, resembling that shown by an open fan held upright. (Century)

Farad. The practical unit of electrical capacity; the capacity of a condenser which, charged with one Coulomb, gives a difference of potential of one volt. (Webster)

Faraday's law. 1. The quantity of substance liberated at the cathode or anode is proportional to the quantity of current passed. 2. The quantities of different substances liberated by the same quantity of current are proportioned to their chemical equivalents. (Webster)

Farrallón (Peru). An outcrop projecting above country-rock. (Dwight)

Fare (Wales). Standing coal, or coal unholed or uncut. (Gresley)

Farewell rock (Eng.). The Millstone grit, so called because no coal is found, worth working, below it. It is used for furnace hearths, being highly refractory. (Webster)

Farm (Eng.). 1. To let at a fixed rental: said of mineral lands.
2. (Corn.) That part of the lord's fee, generally one-fifteenth, which is taken for liberty to work in tin mines. (Min. Jour.)

Farrisite. A name derived from Lake Farris in Norway, and applied by Brögger to a very peculiar rock, which is as yet known only in one small dike. The rock is finely granular in texture and consists of some soda-bearing, but not sharply identified, tetragonal mineral related to melilite, together with barkevicite, colorless pyroxene, biotite, serpentinous pseudomorphs after olivine, magnetite, and apatite. (Kemp)

Far set (Mid.). To timber and sprag the far end of a stall, preparatory to holing. (Gresley)

Fascine (Fr.). A fagot; a bunch of twigs and small branches used for forming foundations on soft ground. (C. and M. M. P.)

Fast. 1. (Lanc.) The first hard bed of rock found after sinking through sand or quick ground, upon which a wedging crib is generally laid.
2. When a heading or bord end is not in communication with another one by a break through, but has only one open end, it is said to be *fast* or called a *fast place*. (Gresley)

Fast-end. 1. The part of the coal bed next the rock. 2. A gangway with rock on both sides. *See* Loose-end. (Raymond)
3. The limit of a stall in one direction, or where the face line of the adjoining stall is not up or level with, nor in advance of, it. (Gresley)

Fast-in-the-foot (Scot.). When the suction holes of a pump are filled up, the pump is said to be fast-in-the-foot. (Barrowman)

Fast jenkin (Eng.). *See* Jenkin. Sometimes spelled Jenking.

Fast place (Scot.). A drift or working place in advance of the others. (Barrowman)

Fast shot (Newc.). A charge of powder exploding without the desired effect. (Raymond)

Fast side (Scot.). The side not sheared in a room where shearing is done on one side only. (Barrowman)

Fast wall (Eng.). The wall in which bearing doors are placed. (G. C. Greenwell)

Fat. A white or yellowish substance forming the chief part of adipose tissue. It may be solid or liquid; it is insoluble in water; when treated with an alkali, the fatty acid unites with the alkaline base to make soap (Rickard). A term used in flotation.

Fat coal; Gas coal. Coals containing much volatile oily matter. (Power)

Fathom (Corn.). Six feet. A fathom of mining ground is six feet square by the whole thickness of the vein, or in Cornish phrase, a fathom forward by a fathom vertical. (Raymond)

Fathomage (Scot.). Payment made to miners per fathom driven or cut. (Barrowman)

Fathom-tale (Corn.). *See* Tutwork, 2. This name probably arises from the payment for such work (tutwork) by the space excavated, and not by the ore produced. (Raymond)

Fatigue. 1. To weary with labor or any bodily or mental exertion. 2. The weakening of a metal bar by the repeated application and removal of a load considerably less than the breaking weight of the bar. (Century)

Fat-lute. A mixture of pipe clay and linseed oil, used for filling joints, apertures, etc. (Century)

Faucet. 1. A device to control the flow of liquid. Commonly called a *tap* and used in house plumbing to draw water. 2. Enlarged end of a pipe to receive the spigot end of another pipe, *i. e.*, a bell end. (Nat. Tube Co.)

Fauld. 1. The tymp-arch or working-arch of a furnace. (Raymond) 2. (Scot.) Same as fold. (Standard)

Faulding or folding-boards (Scot.). Cage-catches or shuts in mid-workings. (Gresley)

Fault. 1. In geology, a break in the continuity of a body of rock, attended by a movement on one side or the other of the break so that what were once parts of one continuous rock stratum or vein are now separated. The amount of displacement of the parts may be a few inches or thousands of feet. Various descriptive names have been given to different kinds of faults as follows:

Closed fault. A fault in which the two walls are in contact (Lindgren, p. 117). *Dip.* A fault whose strike is approximately at right angles to the strike of the strata (Lindgren, p. 120). *Dip Slip.* A fault in which the net slip is practically in the line of the fault dip (Lindgren, p. 126). *Distributive.* *See* Slip fault. *Flaw.* A rare type of fault, described by Luess, in which the strike is transverse to the strike of the rocks, the dip high and varying from one side to the other in the course of the fault, and the relative movement practically horizontal and parallel with the strike of the fault (Lindgren, p. 128). *Gravity.* *See* Normal fault. *Hinge.* A faulting about an axis normal to the plane of faulting, which may produce a fault that on one side of the pivotal axis would be called normal and on the other side reverse, yet there may not be any differential movement in the center of the mass of the two parts of the faulted body (Leith, p. 32). *Horizontal.* A fault with no vertical displacement (Webster). *Longitudinal.* A fault whose strike is parallel with the general structure (Lindgren, p. 121). *Normal.* A fault in which the hanging wall has been depressed relatively to the foot wall (Lindgren, p. 126). *Oblique.* A fault whose strike is oblique to the strike of the strata (Lindgren, p. 120). *Oblique slip.* A fault in which the net slip is between the direction of dip and the direction of strike (Lindgren, p. 126). *Open.* A fault in which the two walls are separated (Lindgren, p. 117). *Overlap.* A thrust fault in which the shifted strata double back over themselves (C. and M. M. P.). *Parallel displacement.* A fault in which all

straight lines on opposite sides of a fault and outside of the dislocated zone, that were parallel before the displacement, are parallel afterward (Lindgren, p. 118). *Pivotal. See* Hinge fault. *Reverse.* A fault in which the hanging wall has been raised relatively to the foot wall (Lindgren, p. 126). *Rotary.* A fault in which some straight lines on opposite sides of the fault and outside of the dislocated zone, parallel before the displacement, are no longer parallel, that is, where one side has suffered a rotation relative to the other (Lindgren, p. 118). *Step.* A series of closely associated parallel faults (Webster). *Strike.* A fault whose strike is parallel to the strike of the strata (Lindgren, p. 120). *Strike slip.* A fault in which the net slip is practically in the direction of the fault strike. J. Geike calls such faults "transcurrent faults." Jukes-Brown designates them "heaves" (Lindgren, p. 126). *Thrust.* A reverse fault (Leith, p. 32). *Transcurrent. See* Strike slip fault. *Translatory. See* Rotary fault. *Vertical.* A fault in which the dip is 90 degrees (Lindgren, p. 126).

2. In coal seams, sometimes applied to the coal rendered worthless by its condition in the seam (slate-fault, dirt-fault, etc.). (Raymond)

Fault block. A body of rock bounded by faults. (Webster)

Fault breccia. The breccia which is frequently found in a shear zone, more especially in the case of thrust faults. (Lindgren, p. 118)

Fault bundle. In geology, a group of faults. (Century)

Fault coal (Aust.). A name used for inferior coal in the Clermont district, Queensland, which occurs not only near faults, but also away from them. (Power)

Fault dip. The inclination of the fault plane, or shear zone, measured from a horizontal plane. (Lindgren, p. 118)

Fault escarpment; Scarp. An escarpment or cliff resulting from a fault, or a dislocation of the rocks adjacent (Century). Also called Fault scarp.

Fault fissure. The fissure produced by a fault, even though it is afterward filled by a deposit of minerals. (Century)

Faulting. In geology, the movement which produces relative displacement, along a fracture, of adjacent rock masses. (La Forge)

Fault line. The intersection of a fault surface or plane with the surface of the earth or with any artificial surface of reference. (Lindgren, p. 117). *Compare* Trend.

Fault plane. A surface along which dislocation or faulting has taken place.

Fault rock. The crushed rock due to the friction of the two walls of a fault rubbing against each other. (Power)

Fault space. The space between the walls of an open fault. (Lindgren, p. 117)

Fault strike. The direction of the intersection of the fault surface, or the shear zone. with a horizontal surface. (Lindgren, p. 118)

Fault surface. The surface along which dislocation has taken place. May be called a fault plane if it is without notable curvature. (Lindgren, p. 117)

Fault terrace. A terrace formed by two parallel fault-scarps on the same declivity, "thrown" in the same direction. (Standard)

Fault trace. The line of intersection of a fault plane with the surface. (Leith, p. 32). *Compare* Trend.

Fault vein. A mineral vein deposited in a fault fissure. (Century)

Fault vent. A volcanic vent located on a fault. (Century)

Fauna. The animals collectively of any given age or region. The plants are similarly called its *Flora.* (Roy. Com.)

Fausted ore (Eng.). Refuse lead ore, which undergoes a second dressing. (Bainbridge)

Fausteds (Eng.). The waste left in the sieve as separated from the ore. (Hunt)

Fauvelle. A system of drilling, that was invented in 1846 by an Englishman, Beart, and a French engineer, Fauvelle, providing for the continuous removal of the detritus from the well by means of a water flush or current of water. All the water-flush systems now in use are modifications of the Fauvelle system, which has long ceased to be employed in its original form. (Mitzakis)

Favas (Braz.). In the diamond fields, brown pebbles, consisting of a hydrated phosphate, or of titanium and zirconium oxides, and regarded as good indications. (Halse)

Fayalite. A silicate of iron, Fe_2SiO_4, belonging to the chrysolite group. (Dana)

Feasible ground. Ground that can be easily worked, and yet will stand without the support of timber and boards. (Pryce)

Feather. *See* Plug and feather.

Feather alum. *See* Alunogen; Halotrichite.

Feather edge. The thin end of a wedge-shaped piece of rock or coal. (Steel)

Feathered tin. Pure tin in a granulated condition; granulated tin: prepared by pouring the molten metal into cold water. (Standard)

Feathering. *See* Plug and feather.

Feather ore. An early German name under which were included fibrous stibnite and jamesonite, but now used only for the latter. (Chester)

Feathers. Two long wedge-shaped pieces of steel or iron which are inserted at the back of a drill hole in coal, between which a long wedge is driven up, forcing the feathers apart, and thereby breaking down or loosening the coal (Gresley). *See* Plug and feather.

Feather shot. Copper granulated by being poured molten into cold water. (Webster)

Feathers of litharge. Crystals of litharge. (Ricketts, p. 102)

Feather zeolite. An erroneous translation of *Faserzeolith*, an early name for a variety of natrolite. (Chester)

Fee. **1.** (Mid.) To load the coal, from a heading into cars. (Gresley)
2. Reward or compensation for services rendered, or to be rendered; especially payment for professional services. **3.** Property, as mineral land. (Webster)

Feed. **1.** Forward motion imparted to the cutters or drills of rock-drilling or coal-cutting machinery, either hand or automatic. (Gresley)
2. The material, as ore, upon which a crusher or grinding mill operates. The material supplied to a furnace or other metallurgical process. **3.** In stone cutting, sand and water employed to assist the saw blade in cutting.

Feeder. **1.** Small vein joining a larger vein. **2.** A spring or stream. **3.** A blower of gas, as in a coal mine. (Raymond)
4. A device for feeding ore uniformly to a rock crusher. It usually has a motion imparted to it to aid in feeding the material. (Richards, p. 71)

Feed-water heater. An apparatus for heating water before it is fed to a boiler. (Standard)

Fee engineer. One who (usually a mining engineer) looks after the interests of the owner of mineral rights. His specific duties are to check up the amount of ore mined by the lessor (operator); see that no undue waste is permitted, and that royalties are paid according to contract.

Feel (So. Staff.). To examine the roof of a seam of coal with a stick or rod by poking and knocking it. (Gresley)

Feigh (Newc., Derb.). Refuse washed from lead ore or coal. (Raymond)

Feitor (Braz.). An overseer. (Halse)

Fekes (Scot.). Shale and slate. (Power) *See also* Faikes.

Feldespato (Sp.). Feldspar. (Halse)

Feldspar. A general name for a group of abundant rock-forming minerals, the names and compositions of which are as follows: *Orthoclase*, a monoclinic potassium-aluminum silicate, $K_2O.Al_2O_3.6SiO_2$; varieties are known as adularia and sanidine. *Microcline*, a triclinic variety of the same composition as orthoclase. *Anorthoclase*, a triclinic feldspar containing both sodium and potassium.
Plagioclase feldspars are a subgroup of triclinic minerals at one end of which is albite, a sodium-aluminum silicate, $Na_2O.Al_2O_3.6SiO_2$; and at the other end anorthite, a calcium-aluminum silicate, $CaO.Al_2O_3.2SiO_2$. Mixtures of these two molecules, which may be represented by Ab and An, respectively, form:
Oligoclase, Ab_6An_1 to Ab_3An_1.
Andesine, Ab_3An_1 to Ab_1An_1.
Labradorite, Ab_1An_1 to Ab_1An_3.
Bytownite, Ab_1An_3 to Ab_1An_6.
Celsian is similar to anorthite, but contains barium in place of calcium,

$BaO.Al_2O_3.2SiO_2$. *Hyalophane* is a monoclinic form containing barium and calcium. Feldspar is found in practically all igneous rocks. (U. S. Geol. Surv.)
The name of the mineral is often prefixed to the names of those rocks that contain it, such as feldspar-porphyry, feldspar-basalt, etc. (Kemp)

Feldspathization. Metamorphic alteration of other material into feldspar.

Feldspathic. Containing feldspar as a principal ingredient. (Raymond)

Feldspathize. To change to feldspar: a term used in geology to describe this metamorphic process. (Century)

Feldspathoids. Silicates of aluminum and an alkali or alkaline earth, that are practically equivalent to feldspar in their relations in rocks. The principal ones are nephelite, leucite and melilite, but sodalite, noselite, hauynite, and analcite could perhaps be also considered such, although their composition varies from the above. (Kemp)

Fell. **1.** One of the many names for lead ore, formerly current in Derbyshire, England. *See also* Riddle. (Duryea)
2. The finer pieces of ore which will pass through the sieve or riddle in sorting. (Standard)

Fell heap (Derb.). A pile of ore and rock as it comes from the mine, placed in a convenient place for dressing. (Mander)

Fells shale. A Scottish oil shale, which yields from 26 to 40 gal. of crude oil and from 20 to 35 lb. of ammonium sulphate per ton. (Bacon)

Felsic. A short term applicable to the group of feldspathic minerals and quartz and to the rocks composed predominantly of these minerals. *Compare* Mafic. (Ransome)

Felsita (Sp.). Felsite. (Halse)

Felsite. The word was first applied in 1814 by Gerhard, an early geologist, to the fine ground-mass of porphyries. These were recognized to be fusible as distinguished from hornstone, which they resembled (*Compare* Eurite). Felsite is now especially used for those finely crystalline varieties of quartz-porphyries, porphyries or porphyrites that have few or no phenocrysts, and that, therefore, give but slight indications to the unaided eye of their actual mineralogical composition. The microscope has shown them to be made up of microscopic feldspar, quartz and glass. Petrosilex has been used as a synonym. (Kemp)

Felsitic. **1.** In petrology, pertaining to, characteristic of, or composed of felsite. **2.** Almost or wholly crystalline, but made up of crystals too small to be readily distinguished by the unaided eye: said of the texture of some igneous rocks and practically synonymous with Aphanitic and Lithoidal. (La Forge)

Felsitoid. Having a felsitic appearance, with an exceedingly compact aphanitic texture: applied to metamorphic rocks. (Century)

Felsöbanyite. A massive snow-white hydrous aluminum sulphate mineral, $2Al_2O_3.SO_3.10H_2O$. (Dana)

Felsophyre. A contraction for felsite-porphyry (Kemp). A porphyritic rock having a felsitic ground mass. (Webster)

Felsophyric. Of porphyritic texture with a felsitic groundmass. (La Forge)

Felspar. *See* Feldspar.

Felstone. A very compact and uniform kind of feldspar (Davies). *See also* Felsite.

Felsyte. *See* Felsite.

Femic. In the Quantitative system of classification of igneous rocks, pertaining to or composed of the standard minerals of the second group, comprising minerals comparatively low in silica and high in iron, magnesium, or calcium: often but incorrectly used in place of Mafic or Subsilicic. (La Forge)

Fence (Aust.). **1.** An obstruction, such as a bar or cross-sticks, placed across an underground passage past which men have no right to travel. (Power)
2. To make a drive (trench) around the boundaries of an alluvial claim, to prevent wash dirt from being worked out by adjoining claim holders. (C. and M. M. P.)

Fence guards (So. Staff.). Rails fixed around the mouth of a shaft, or across the shaft at a landing to keep people and objects from falling in. (Gresley)

Fenda (Port.). A fissure. (Halse)

Fend-off; Fend-off bob (Eng.). A beam hinged at one end (the other end having a free reciprocating motion) fixed at a bend in a shaft or upon an inclined plane, to regulate the motion of and to guide the pump rods passing round the bend. (Gresley)

Ferberite. An iron tungstate mineral, $FeWO_4$. Applied to the wolframites which carry little or no manganese. Ferberite contains 76.3 per cent tungsten trioxide, WO_3. (U. S. Geol. Surv.)

Fergusonite. A metacolumbate and tantalate of yttrium, with erbium, cerium, uranium, etc. Found in pegmatites. (U. S. Geol. Surv.)

Ferraris furnace. 1. An inclined reverberatory furnace for calcining sulphide ore. (Ingalls, p. 21)
2. A gas-fired, heat-recuperative furnace for the distillation of zinc ore. (Ingalls, p. 466)

Ferraris table. An ore-concentration table consisting of a plane rubber belt traveling between rollers furnished with broad flanges to keep the belt in line. It has a slope from side to side. The feed is at the upper corner, and washing is by jets directed across the table. (Liddell)

Ferric furnace. A high, iron blast furnace, in the upper part of which crude bituminous coal is converted into coke. (Raymond)

Ferriferous. Containing iron, as rocks. (Standard)

Ferrilite. A variety of common trap; ragstone. (Standard)

Ferrite. 1. An indeterminable reddish decomposition product, in altered igneous rocks, usually consisting of hydrous iron oxide. (Standard)
2. In iron and steel, pure metallic iron. 3. Any of several compounds which may be regarded as metallic derivations of the ferric hydroxide, $Fe_2O_3(OH)_2$, analogous to aluminates. (Webster)
4. Microscopic crystals of iron oxide. (Kemp)

Ferritization. Metamorphic alteration of other material into ferrite. (Standard)

Ferroalloy. An alloy of iron with some other metal. It ordinarily refers to alloys that are used in making steels. The principal ferroalloys and the approximate percentage of the alloying metal ordinarily added are:

Ferroaluminum: Contains about 10 per cent aluminum. *Ferrocerium:* Contains from 50 to 94 per cent cerium. It is usually made from monazite residues after the extraction of thoria and, besides cerium, contains didymium, lanthanum, and other rare earth metals in smaller quantity. *Ferrochromium* or *ferrochrome:* Contains 56 to 70 per cent chromium. *Ferrocobalt:* Contains about 50 per cent cobalt. *Ferromanganese:* Only iron-manganese alloys carrying 45 per cent or more of manganese are known as ferromanganese. The iron alloys containing 7 to 45 per cent manganese are known as "spiegel" or "spiegeleisen," also as "mirror iron" or "specular pig iron." "Standard ferromanganese" contains 80 per cent manganese. Alloys containing as much as 70 per cent manganese are made in the blast furnace. The electric-furnace product contains 70 to 83 per cent manganese. "Silicospiegel" is a blast-furnace spiegeleisen carrying 17 to 22 per cent manganese and 6 to 12 per cent silicon. In European practice an alloy is made that contains 20 to 25 per cent silicon and 50 to 55 per cent manganese. *Ferromolybdenum:* Contains from 45 to 80 per cent molybdenum. *Ferronickel:* Contains 25 to 75 per cent nickel according to order. Ferronickel has seldom been used as nickel is readily soluble in molten steel, and is easily added without loss. *Ferrophosphorus:* Although not strictly an alloy is generally considered as one of the ferroalloys. It contains 10 to 25 per cent phosphorus. *Ferrotungsten:* Contains from 70 to 92 per cent tungsten. Most ferrotungsten is made in the electric furnace and ordinarily contains 70 to 82 per cent tungsten and 0.3 per cent or more carbon. The sulphur and phosphorus must be kept down to the percentage allowable in steels, *i. e.* about 0.05 per cent sulphur and about 0.05 per cent phosphorus. Ferrotungsten is also made by chemical processes, being precipitated as a powder and containing 87 to 92 per cent tungsten. *Ferrotitanium:* Contains 10 to 50 per cent titanium. "Ferrocarbon-titanium" is the trade name for the electric furnace product. That made by the alumino-thermic process is free from carbon but contains aluminum. *Ferrosilicon:* Contains 7 to 92 per cent silicon. Grades carry-

ing 7 to 16 per cent silicon are made in blast furnaces but higher silicon content is obtained only in the electric furnace. Ferrosilicon containing 85 to 92 per cent or more of silicon is used for making hydrogen gas. *Ferrovanadium:* Contains 20 to 50 per cent vanadium. Under present practice the tendency is toward 35 to 40 per cent vanadium. *Ferrouranium:* Contains between 20 and 40 per cent uranium. *Ferrozirconium:* Contains 20 to 50 per cent zirconium.

Numerous experimental alloys have been made, such as ferroboron, ferroboron-silicon ferrocobalt-chromium, ferromagnesium, ferrocalcium, ferronickel-silicon, ferrosodium and ferrotantalum, but their use has not been standardized.

There are three principal processes of making ferroalloys, viz: The blast furnace, the electric furnace, and by alumino-thermic smelting. Ferroalloys can be made in the blast furnace only when the alloy has a comparatively low melting point. The alumino-thermic process gives an alloy free from carbon but leaves some aluminum in the alloy. Either of the other processes gives alloys containing a certain percentage of carbon, though under good practice the carbon can be kept comparatively low in most ferroalloys. (Frank L. Hess.)

Ferrocalcite. A variety of calcite containing ferrous carbonate. (Dana)

Ferrocarril (Sp.). Railway, railroad; *F. aéro*, a rope way. (Halse)

Ferrogoslarite. A variety of goslarite containing ferrous sulphate. (Standard)

Ferrolite. Wadsworth's name for rocks composed of iron ores. (Kemp)

Ferromagnesian. In petrology, containing iron and magnesium. Applied to certain dark silicate minerals, especially amphibole, pyroxene, biotite, and olivine, and to ingenous rocks containing them as dominant constituents. (La Forge)

Ferromagnetic. Magnetic in a high degree, as iron, nickel and cobalt. (Webster)

Ferruginous. Containing iron. (Raymond)

Ferruginous sandstone. A sandstone rich in iron as the cementing material, or as grains, or both. (Bowles)

Ferrule. 1. A metal ring or cap on the end of a cane, handle of a tool, post, or the like, to strengthen or protect it. 2. A bushing or thimble inserted in the end of a boiler tube or the like, to spread it and make a tight joint. 3. A short pipe-coupling. (Standard)

Ferrum (L.). Iron, for which the chemical symbol is Fe.

Fetid. Having the odor of sulphureted hydrogen or rotten eggs. The odor is elicited by friction from some varieties of quartz and limestone. (Dana)

Fetid sandstone. *See* Stinkstone.

Fettle. To cover or line with a mixture of ore, cinders, etc., as the hearth of a puddling furnace. (Webster)

Fettling. 1. Material used to line the hearth of a puddling furnace, as sand, or a mixture of ore, cinder, calcined magnesite, etc. (Webster) 2. (No. of Eng.). Cleaning up any underground roadway, etc. (Gresley)

Fiador (Sp.). 1. A bondsman, surety. 2. A safety catch. 3. A supplementary rope used in a shaft for men to hold on to when ascending and descending. (Halse)

Fiasco. An ignominious failure of any kind; a complete breakdown. Said of a mining venture which has resulted in failure.

Fibra (Sp.). 1. A filament. 2. A small vein of ore. (Halse)

Fibrolite. A mineral of the same composition as andalusite which it closely resembles in crystal form, although generally in more slender crystals (Ransome). Sometimes used as a prefix to rock names. (Kemp)

Fichtelite. A white, translucent, brittle, odorless hydrocarbon from peat beds near Redwitz, North Bavaria; it is easily soluble in ether, is soluble in cold nitric acid, and distils without decomposition. (Bacon)

Fictile. 1. Molded, or capable of being molded. 2. A piece of fictile ware. (Webster)
3. Made of earth or clay; of or pertaining to pottery. (Standard)

Fiddle blocks (Scot.). Pulley blocks used for raising pump pipes, in which the pulleys are placed one above another. (Barrowman)

Fieg (Wales.). A crack in the roof, often letting in water. (Gresley)

Field. 1. A large tract or area of many square miles containing valuable minerals. *See* Coal field; *also* Mineral field. 2. A colliery, or firm of colliery proprietors. 3. The immediate locality and surroundings of a mine explosion. (Gresley) 4. A region or space traversed by lines of force; as gravitational, magnetic, or electric. (Webster)

Field-book. A book used in surveying, engineering, geology, etc., in which are set down the angles, stations, distances, observations, etc. (Century)

Field club (Eng.). A sick or accident benefit club or society supported and managed by the owners or lessees of a colliery. (Gresley)

Fieldwork. Work done, observations taken, or other operations, as triangulation, leveling, making geological observations, etc., in the field or upon the ground. (Century)

Fields. (So. Afr.) A synonym for Goldfields.

Fierro (Sp.). 1. Metallic iron. 2. Matte. 3. Speiss. 4. *See* Hierro. *F. blanco*, arsenical pyrite; *F. viejo* (Peru), silver ores consisting mainly of iron oxide; *F. espejado*, specular iron ore. (Dwight)

Fierros (Mex.). 1. Low-grade silver ores (from 20 to 35 oz. per ton). 2. *Abzug* and *abstrich* from refining lead. (Dwight)

Fiery. Containing an explosive gas (Steel). Said of a gaseous mine.

Fiery drake; Burning drake (Derb.). A meteor much talked of by miners (1747), and said to be a sure sign of an abundance of ore at the place where it fell (Hooson)

Fiery heap (Eng.). The deposit of rubbish and waste or unsalable coal which ignites spontaneously. (G. C. Greenwell)

Fiery mine. A mine in which the seam or seams of coal being worked give off a large amount of methane.

Fighting (Eng.). Said of a ventilating current when the motion of the air is first in one direction and then in another, due to the weight or pressure of the ventilating current of air in a mine becoming equal or nearly so in both the downcast and upcast shafts. (Gresley)

Figure stone. Same as Agalmatolite. (Webster)

Fijian soapstone. A soapstone of a Post-Tertiary age found in the Fiji Islands. (Standard)

Filite. A smokeless powder used in Italy. (Webster)

Fill (Eng.). To load trams in the mine. (Gresley)

Filled stope. A stope in which the waste rock of the vein is left on the floor of the stope, thus raising the stope as the work proceeds. (Creede United Mines Co. *v.* Hawman, 127 Pac. Rept., 924; 23 Colorado App., p. 130)

Filler (Eng.). A man who fills trams or cars at a working place or in a stall. (Gresley)

Fillet. The rounded corner of a groove in a roll used in shaping structural steel. (Raymond)

Filling. 1. (Eng.) The places where trams are loaded in the workings. (Gresley) 2. The waste material used to fill up old stopes or chambers. 3. Allowing a mine to fill with water. (Weed)

Filling deposits. A general term for deposits filling pre-existing cavities, replacing the term "crustified deposits" proposed by Posepny. (Eng. and Min. Jour., vol. 75, p. 257)

Filling-out (Aust.). Shoveling into skips and taking to the surface, as filling-out burning material when a small fire occurs in a mine. (Power)

Filling pieces. Rocks of such size as to fill the open spaces between crib timbers, etc. (Sanders, p. 116)

Filling system. *See* Sublevel stoping.

Filling-up method. *See* Overhand stoping.

Film. A coating or layer; a thin membrane; a term used in flotation. (Rickard)

Film-sizing tables. A table used in ore dressing for sorting fine material by means of a film of flowing water. These tables may be considered as surface tables, from which the products are removed before they have found a bed, so that the washing is always done on the same surface; and building tables or buddles, on which the products are removed after they have formed a bed. These use the relative transporting power of a film of water flowing on a quiet surface, which may be either rough or

smooth, to act upon the particles of a water-sorted product. The smaller grains, of high specific gravity, are moved down the slope slowly or not at all by the slow undercurrent; the larger grains, of lower specific gravity, are moved rapidly down the slope by the quick upper current. (Liddell)

Filón (Sp.). 1. A vein or lode. The Spanish use of this word is for the large veins, while *Vena* and *Veta* and their diminutives apply to the smaller veins; *F. de capa*, a bedded vein; *F. compuesto*, a compound vein; *F. de contacto*, a contact vein; *F. doble*, two veins which meet and run alongside of each other, the filling of each remaining distinct; *F. mineral*, a metalliferous vein or lode. (Halse)
2. (Mex.) A small stringer; an intersecting vein. (Dwight)
3. *F. de roca*, a dike; *F. de carbón*, a coal measure. (Halse)

Filter. 1. Any porous article, as a cloth, paper, sand, or charcoal through which water or other liquid is passed to separate from it matter held in suspension. 2. To pass through; to percolate. (Webster)

Filter bed. A pond or tank having a false bottom covered with sand, and serving to filter river or pond water. (Century)

Filtering-stone. Any porous stone, such as sandstone through which water is filtered. (Century)

Filter press. 1. A machine for removing a liquid from crushed ore (or pulp), usually by forcing the liquid under pressure through canvas or cloth, leaving the muddy ore mass behind. (Weed)
2. An apparatus employed in the separation and refining of ozokerite and paraffin wax. (Mitzakis)

Filter pump. A pump to aid filtration by producing a partial vacuum by means of a stream of water. (Webster)

Filtrar (Sp.). To filter; to sink in. (Dwight)

Filtrate. 1. To filter by straining or percolation. 2. The liquid which has passed through a filter. (Century)

Filtration. The act or process of filtering; the process of mechanically removing the undissolved particles in a liquid by passing the liquid through filtering paper, charcoal, sand, etc. (Century)

Filty (Som.). A local term for fire damp. (Gresley)

Fin. The thin sheet of metal squeezed out between the collars of the rolls in a roll train. (Raymond)

Find. 1. (Eng.) A sinking or driving for coal, etc., attended with success. (Gresley)
2. A thing found or discovered; especially, a valuable discovery; as, a find of minerals. (Standard)

Fine gold. Almost pure gold. The value of bullion gold depends on its percentage of fineness (Skinner). *See* Fineness; *also* Float gold.

Fine metal. 1. *See* Metal, 8. 2. The iron or plate metal produced in the refinery. (Raymond)

Fineness. The proportion of pure silver or gold in jewelry, bullion or coin, often expressed in parts per thousand. The fineness of United States coin is nine-tenths, or 900 fine; that of English gold coin is eleven-twelfths or 917 fine, and English silver coin is 925 fine. (Webster)

Fine raggings (Eng.). Pieces of ore deposited at the bottom of a sieve. (Hunt)

Finery. A charcoal hearth for the conversion of cast-iron into malleable iron. (Raymond)

Fines. 1. Very small material produced in breaking up large lumps, as of ore or coal. (C. and M. M. P.)
2. The product passing through the screen when the material from the zinc boxes of a cyanide mill is rubbed over a sieve. *See* Shorts. (Clennell, p. 41)
3. Small pieces of rock and dirt that fall from the mine roof, and generally, though not always, precede a falling of heavy material and consequently signify danger. (Tennessee Copper Co. *v.* Gaddey, 207 Fed. Rept., p. 299)
4. Ores in too fine or pulverulent a condition to be smelted in the same way as ordinary coarse ores. (Standard)

Finger bar. 1. (Aust.) An iron rod attached to a cage with the end bent in such a way as to keep the skips from running off the cage while being raised or lowered. (Power)
2. A prop for hanging up a stamp. (Richards, p. 199)

Finger grip. 1. (Eng.) A tool used in boring for gripping the upper end of the rods. (Gresley)
2. An instrument (tool) for recovering from a bore, as of a well, a broken rod, or dropped (lost) tool. (Standard)

Finial. Ornamental pieces of burned clay used for finishing off the joining of the ridge line with the hips, ridge line at gables, or top of a tower. (Ries)

Fining. 1. *See* Refining. 2. The conversion of cast into malleable iron in a hearth or charcoal fire. (Raymond)

Finishing jig. The jig used to save the smaller particles of ore in a concentrator or stampmill. (Weed)

Finishing rolls. 1. The rolls of a train which receive the bar from the roughing rolls and reduce it to its finished shape. (Raymond)
2. The last roll, or the one that does the finest crushing in ore dressing, especially in stage crushing.

Finos (Mex.). Fine ore; fines. (Dwight)

Fintas (Braz.). A fixed annual tax on mines. (Halse)

Fiord; Fjord. A narrow, deep, steep-walled inlet of the sea, formed by the submergence of a mountainous coast. (La Forge)

Fior di persicor. A white marble with veins and clouds of purple or red, from Albania. (Merrill)

Fiorite. Siliceous sinter, named from Mt. Santa Fiora, in Tuscany (Kemp). An opal occurring near hot springs. (Dana)

Fire. 1. To blast with gunpowder or other explosives. 2. A word shouted by miners to warn one another when a shot is fired. (Steel)
3. (Eng.). A collier's term for the explosive gas in mines. 4. To explode or blow up. The expression "the pit has fired" signifies that an explosion of fire damp has taken place. (Gresley)
5. Fuel in a state of combustion, as on a hearth, in a grate, furnace, etc. 6. In precious stones the quality of refracting and dispersing light, and the brilliancy of effect that comes from this quality. (Century)

Fire assay. The assaying of metallic ores, usually gold and silver, by methods requiring a furnace heat. It commonly involves the processes of scorification, cupellation, etc. (Standard)

Fireback. The back wall of a furnace or fireplace. (Century)

Fire bank (Mid.). A spoil bank which ignites spontaneously. (Gresley)

Fire bars. Grate bars in a fireplace. (Raymond)

Fire blende. Pyrostilpnite. (Power)

Fire board. A blackboard on which the fire boss indicates every morning, by chalk marks, the amount of gas in different parts of the mine. (Chance)

Fire boss. An underground official who examines the mine for fire damp, and has charge of its removal (Steel). *See* Fireman; *also* Fire viewer.

Fire box. The chamber of a furnace, steam boiler, etc. (Webster)

Fire breeding (So. Staff.). Said of any place underground showing indications of a gob fire. (Gresley)

Fire brick. A refractory brick of fire clay or of siliceous material used to line furnaces. (Raymond)

Fire bridge. The separating low wall between the fireplace and the hearth of a reverberatory furnace. (Raymond)

Fire chamber. The part of a furnace which contains the fuel, as in puddling furnace. (Standard)

Fire clay. A clay comparatively free from iron and alkalies, not easily fusible, and hence used for fire bricks. It is often found beneath coal beds (Raymond). Also called Bottom stone.

Fire coal (Scot.). Coal supplied to workmen connected with a colliery. (Barrowman)

Fire coat. A film of oxide on metal due to the action of fire or heat. (Webster)

Fire crack. A crack which forms in a metal while it is being reheated or annealed. (Webster)

Fire cure (Scot.). A rude kind of ventilation furnace, about 2 feet by 3 feet. (Gresley)

Fired. 1. (Eng.) Said of a mine when an explosion of fire damp has taken place. (G. C. Greenwell)
2. Said of one who has been discharged from work.

Fire damp. A combustible gas or "damp" formed by decomposition of coal or other carbonaceous matter, and consisting chiefly of methane, CH_4; also the explosive mixture formed by this gas (5.5 to 13 per cent) and air (Webster). The gas is contained in the coal and often given off in large quantities, and explodes upon ignition when mixed with atmospheric air.

Fire door. 1. The door or opening through which fuel is supplied to a furnace or stove. 2. A fireproof door in a building or in a mine, as a door to enclose an area in which there is a mine fire.

Fire engine. 1. (Scot.) A name formerly given to the steam engine. (Barrowman)
2. (Eng.) A pump worked by hand for throwing water upon gob fires. (Gresley)

Fire feeder. An apparatus for feeding the fire of a furnace. (Century)

Fire grate. The grate which holds the fuel in many forms of heaters and furnaces. (Century)

Fire-heavy (Eng.). Words marked upon the scale of a mercurial barometer to indicate when much fire damp may be expected to be given off in the mine, and to show that extra vigilance is required to keep the ventilation up to its full strength. (Gresley)

Fire hole (Scot.). A space in front of boiler furnaces to hold fuel (Barrowman). A fire box.

Fire kiln. An oven or place for heating anything. (Century)

Fire lamp (Eng.). 1. An iron basket on three legs, or hung by chains from posts, in which coal is burnt to give light to miners where gas is not used. 2. An iron bucket or basket of fire suspended in a pit-shaft (shallow mine) to create a draught or ventilation through the workings. (Gresley)

Fireman (Eng.). A man whose duty it is to examine with a safety lamp the underground workings, to ascertain if gas is present, to see that doors, bratticing, stoppings, etc., are in good order, and generally to see that the ventilation is efficient (Gresley). *See also* Fire boss.

Fire marble. *See* Lumachelle.

Fire opal. A hyacinth-red opal which gives out firelike reflections. (Dana)

Fire pan (York.). *See* Fire lamp, 2.

Fire plug. A plug or hydrant for drawing water for extinguishing fires. (Webster)

Fire point. *See* Flashing point.

Fire pot. 1. The vessel which holds the fire in a furnace. 2. A crucible. (Webster)

Fireproofing. 1. Act or process of rendering anything fireproof; also the material used in the process. (Webster)
2. A general name applied to those forms used in the construction of floor arches, partitions, etc., for fireproof buildings. (Ries)

Fire rib (So. Staff.). A solid rib or wall of coal left between workings to confine gob fires. (Gresley)

Fire setting. The softening or cracking of the working face of a lode, to facilitate excavation, by exposing it to the action of a wood fire built against it. Now nearly obsolete, but much used in hard rock before the introduction of explosives (Raymond). *See also* Firing, 4.

Fire stink. 1. (So. Staff.) The odor from decomposing iron pyrite, caused by the formation of sulphureted hydrogen. (Raymond)
2. (Eng.) Smell, indicating spontaneous combustion in a coal mine (Gresley). Also called Fire styth.

Firestone. 1. (Som.) Synonymous with Fire clay. (Gresley)
2. Iron pyrite formerly used for striking fire; also, a flint. 3. A stone which will endure high heat. 4. In a slag hearth, a plate of iron covering the front of the furnace except for a few inches of space between it and the bed plate. (Webster)

Fire styth. *See* Fire stink, 2.

Fire tile. Same as Dutch tile. (Standard)

Fire trier (Mid.). *See* Fireman; *also* Fire boss.

Fire viewer. A person whose duty it is to examine the workings of a mine with a safety lamp (Roy). A Fire boss.

Fire wall. A fireproof wall used as a fire stop. (Webster)

Firing. 1. The act of discharging a firearm, a mine, blast, etc. 2. Act or mode of introducing fuel into the furnace and working it. 3. Exposing to intense heat in a kiln. (Webster)
4. (Derb.) The application of heat by building fires upon hard strata in order to soften them, preliminary to the use of the pick. *See also* Fire setting. (Mander)

Firing a mine (Eng.). Maliciously setting fire to a coal mine. (Gresley)

Firing line (Scot.). An appliance used in former times for clearing a room of fire damp. A prop being set up near the face, a ring was fixed in it near the roof, and a cord or wire passed through the ring. Attaching his lamp to one end of the cord, the miner withdrew to a distance, and pulling the cord raised the lamp to the height necessary to explode the accumulated fire damp. (Barrowman)

Firing machine. 1. A designation for the electric blasting machine. (Du Pont)
2. An apparatus for feeding a boiler furnace with coal. A mechanical stoker.

Firing pin. A wooden cylinder upon which the blasting paper is formed in a case for the cartridge or dummy. (Steel)

Firing point (Eng.). That point at which fire damp mixed with atmospheric air explodes (Gresley). The percentages of gas vary from 6 to 13 per cent, with the maximum explosibility at about 11 per cent.

Firm (Corn.). A solid shelf of rock; bedrock (Pryce). *See also* Shelf.

Firn. A Swiss name for the granular, loose or consolidated snow of the high altitudes before it forms glacial ice below (Kemp). *See* Névé.

First aid. The assistance or treatment which should be given an injured person immediately upon injury or as soon thereafter as possible. (C. and M. M. P.)

First man (Leic.). The head butty or coal getter in a stall. (Gresley)

First-of-the-air. 1. (Ark.) That part of the air current which has just entered a mine, or working place; the intake air. 2. (Ark.) The working place of a mine, or the split, which is nearest the intake, or receives the first of the air. (Steel)

Firsts. The best ore picked from a mine (C. and M. M. P.). Heads; concentrates.

First water. The purest variety or finest quality; said of certain precious stones, especially the diamond. (Standard)

First weight (Eng.). The first movement of the roof which takes place after commencing to excavate any large area of coal, without leaving pillars. (Gresley)

First working (Eng.). Proving a seam of coal, etc., by driving headings, etc. Development work. (Gresley).

Firth. A narrow arm of the sea; a frith. (Webster)

Fish. 1. (Eng.). To catch up a drowned clack by means of a fish head. *See* Fish head. (G. C. Greenwell)
2. To join two beams, rails, etc., together by long pieces at their sides. (C. and M. M. P.)
3. To pull up or out from or as from some deep place, as if by fishing (Century). Said of recovering lost or broken well-boring tools.

Fish backs (Vt.). A local term applied to groups of closely spaced fractures in marble deposits. (Bowles)

Fish-bed. In geology, a deposit containing the fossil remains of fishes in predominant quantity among those of other marine animals. Also called Bone-bed. (Century)

Fish-bellied (Eng.). An early form of railway rail which had its greatest depth halfway between the supporting chairs (sleepers or ties), the lower edge being elliptically curved between chair and chair. Cast-iron rails were made of this form. (G. C. Greenwell)

Fish-eye stone. A synonym for Apophyllite (Chester). A hydrated calcium silicate in which part of the calcium may be replaced by potassium.

Fish head (Scot.). A tool for extracting clacks (valves) from mine pumps. (Barrowman)

Fishing. In oil-well drilling, the operation by which lost or damaged tools are secured and brought to the surface from the bottom of a well. (Mitzakis)

Fish plates. The bars used to join the ends of adjacent rails in a car track. (C. and M. M. P.)

Fish-tail bit. A bit usually employed in the rotary system of drilling. It is used for drilling in soft strata, such as sand and clay. (Mitzakis)

Fissile. Capable of being split, as schist, slate, and shale. (Roy. Com.)

Fissility. 1. Quality of being fissile. 2. A rock structure characterized by separation into parallel laminae, as slate, schist, etc. (Webster)

Fissle; Fistle (No. of Eng.). A faint crackling noise, which takes place when creep begins in the workings. (Gresley)

Fisura (Sp.). Fissure. (Dwight)

Fissure. An extensive crack, break, or fracture in the rocks. A mere joint or crack persisting only for a few inches or a few feet is not usually termed a fissure by geologists or miners, although in a strict physical sense it is one. (Ransome)

Where there are well-defined boundaries, very slight evidence of ore within such boundaries is sufficient to prove the existence of a lode. Such boundaries constitute the sides of a fissure (Iron Silver Mining Co. *v.* Cheeseman, 116, U. S. Sup. Ct. Rept., p. 536; Hyman *v.* Wheeler, 29 Fed. Rept., p. 355; Cheeseman *v.* Shreve, 40 Fed. Rept., p. 794). *See* Vein; Lode; and Fissure vein.

Fissure vein. A cleft or crack in the rock material of the earth's crust, filled with mineral matter different from the walls and precipitated therein from aqueous solution, or introduced by sublimation or pneumatolysis. (Shamel, p. 136)

A mineral mass, tabular in form, as a whole, although frequently irregular in detail, occupying or accompanying a fracture or set of fractures in the inclosing rock; this mineral mass has been formed later than the country rock, either through the filling of open spaces along the latter or through chemical alteration of the adjoining rock. (Lindgren, Genesis of Ore Deposits, p. 500)

A fissure in the earth's crust filled with mineral (Raymond). *See* Fissure; Lode; and Vein. A fissure vein or lode may have in addition to the clear fissure filling of mineral a considerable amount of decomposed wall rock, clay, etc. (Consol. Wyoming Gold Mining Co. *v.* Champion Mining Co., 63 Fed. Rept., p. 544)

Fistle. *See* Fissle.

Fitcher (Corn.). To stick fast, as a drill. (Gillette, p. 175)

Fittage (Newc.). Expenses incurred in selling the coal. (Min. Jour.)

Fitter (Eng.). The person who sells coal at the shipping port (Bainbridge). A coal factor. *See also* Factor.

Fitting (Scot.). 1. The whole machinery, plant, and works of a colliery. (Barrowman)

2. Selling coal, as the business of a fitter. (Bainbridge)

Fitting office (Newc.). The office for the transaction of business relating to coal sales, at the shipping port. (Min. Jour.)

Fittings. A term used to denote all those pieces that may be attached to pipes in order to connect them or provide outlets, etc., except that couplings and valves are not so designated. (Nat. Tube Co.)

Fix. To fettle or line with a fix or fettling, consisting of ores, scrap and cinder, or other suitable substances, the hearth of a puddling furnace. (Raymond)

Fixation. 1. The act or process by which a fluid or a gas becomes or is rendered firm or stable in consistency, and evaporation or volatilization prevented; specifically in chemistry that process by which a gaseous body becomes fixed or solid on uniting with a solid body, as fixation of oxygen, fixation of nitrogen (C ntury). A state of non-volatility, or the process of entering such a state; as the fixation of a metal; the fixation of nitrogen in a nitrate by bacteria. 2. The process by which dye colors are made permanent. (Standard)

Fixed carbon. That part of the carbon which remains behind when coal is heated in a closed vessel until the volatile matter is driven off (Steel). It is the nonvolatile matter minus ash. (Webster)

Fixed rent (Scot.). The minimum yearly rent for use of a mineral field. (Barrowman)

Flag. 1. (Ches.) A bed of hard marl overlying the top stratum of a salt bed. (Gresley)

2. A thin slab of stone (Bowles). *See also* Flagstone.

Flagging. *See* Flag, 2.

Flagging a squib. Uncoiling the end of the paper which is impregnated with sulphur or some other combustible substance. Flagging the squib permits more time to elapse from the ignition of the unrolled paper and the firing of the charge of powder. (Du Pont)

Flaggy. Capable of being split into parallel-faced slabs thicker than slates. (Roy. Com.)

Flags. Thin, even beds of rocks which readily separate along the plane of deposition. They may be arenaceous, argillaceous, or calcareous. (Emmons)

Flagstone. A rock that splits readily into slabs suitable for flagging. (Bowles)

Flaikes (Scot.). Shaly or fissile sandstone (Gresley). A variation of flake.

Flake copper. Very thin scales of native copper. (Weed)

Flake white. A name sometimes given to pure white lead. (Ure)

Flame coloration. *See* Flame reaction.

Flame engine. A gas engine. (Century)

Flame kiln. A lime kiln that burns wood. (Standard)

Flame reaction. The characteristic coloration which certain elements or their compounds impart to a flame, thus affording a test (flame test) for their presence. (Webster)

Flame safety lamp. *See* Safety lamp.

Flame spectrum. The spectrum obtained by volatilizing substances in a nonluminous flame. (Webster)

Flamper (Derb.). Clay ironstone in beds or seams. (Gresley)

Flanch. 1. (No. of Eng.) The flange or broad ends of iron pipes where joined to one another (Gresley). *See also* Flange, 1.
2. To slant outward; to flare. (Webster)

Flang (Corn.). A two-pointed pick used by miners. (Raymond)

Flange. 1. A projecting rim, edge, lip or rib (Nat. Tube Co.). *See* Flanch.
2. (Derb.) A place where the vein turns out of its course. (Hooson)
3. Applied to a vein widening (Raymond)
4. A molder's tool for forming flanges. (Webster)
5. A plate to close a pipe opening or other orifice; a blank flange. (Standard)

Flange bolts (Newc.). Bolts for fastening pumps, or pipe flanges. together. (Min. Jour.)

Flank bore. *See* Flank hole.

Flank hole (Eng.); **Flank bore** (Scot.). A hole bored into the side of a heading or other underground working, to test the thickness of a rib or barrier, or the position of old workings likely, or known, to contain water or gas, or both. (Gresley)

Flannels (Eng.). Suits of stout white flannel clothes provided by the masters for the enginewright and his assistant for wearing in a shaft or other wet place when on repair work. (Gresley)

Flap-door (Newc.). A manhole door. (Raymond)

Flapper-topped air crossing (Eng.). An air crossing fitted with a double door or valve giving direct communication between the two air currents when forced open by the blast of an explosion. (Gresley)

Flapping. A term used in copper refining to explain the process of striking the surface of the molten metal with the edge of the head of a rabble in order to uncover the surface of the copper. (Eng. and Min. Jour., vol. 102, p. 875)

Flaps (Eng.). Rectangular wooden valves about 24 inches by 18 inches by 1½ inches thick, hung vertically to the framework of the air chambers of a ventilator (Gresley). A flap valve.

Flap valve. A valve which opens and shuts on one hinged side; a clack valve. (Webster)

Flaqueza (Peru). Leanness; shaly structure; the overhanging section of a precipice. (Dwight)

Flaser-structure. A structure developed in granitoid rocks and especially in gabbros by dynamic metamorphism. Small lenses of granular texture are set in a scaly aggregate that fills the interstices between them. It appears to have been caused by shearing that has crushed some portions more than others, and that has developed a kind of rude flow-structure. (Kemp)

Flash (Ches.). A subsidence of the surface due to the working of rock salt and pumping of brine. (Gresley)

Flashed brick. Brick that have had their edges darkened by special treatment in firing. (Ries)

Flashing. In glass making: The reheating of partially formed glassware in a flashing furnace, to restore the plastic condition and to smooth rough edges. (Century)

Flashing furnace. A furnace for reheating glass. (Century)

Flashing point; Flash point. The temperature at which petroleum, being heated, begins to evolve vapor in such quantity that on the application of a small flame a momentary flash due to the ignition of the vapor occurs. (Mitzakis)

Flash test. A test to determine the flashing point of an oil. (Webster)

Flask. **1.** The wooden or iron frame which holds the sandmold used in a foundry. **2.** An iron bottle in which quicksilver is sent to market. It contains 76½ pounds. (Raymond) **3.** A small bottle-shaped vessel for holding fluids, especially one with a broad, flat body (Webster). A tinned vessel in which a miner carries oil for his lamp, or beverage for his lunch. (Barrowman)

Flat. **1.** (Derb. and No. Wales) A horizontal vein or ore-deposit auxiliary to a main vein; also any horizontal portion of a vein elsewhere not horizontal. (Raymond) **2.** (Derb.) A district or set of workings separated by faults, old workings, or barriers of solid coal. **3.** (No. of Eng.) A siding or station underground; a parting. **4.** (Ark.) A railroad car of the gondola type for shipping coal. (Steel) **5.** A level surface, without elevation, relief, or prominences; a plain; a level tract along the banks of a river. (Webster)

Flat-back stope. An overhand stoping method in which the ore is broken in slices parallel with the levels. Also called Longwall stope. (H. C. Hoover, p. 98)

Flat coals (Scot.). Seams of coal lying horizontal or at a low angle of inclination.

Flat cut. A manner of placing the bore holes, for the first shot in a tunnel, in which they are started about 2 or 3 feet above the floor and pointed downward so that the bottom of the hole shall be about level with the floor. (Du Pont)

Flat-joint pointing. A pointing in which the mortar is flush with the surface and is lined with the point of the trowel. (Standard)

Flat lad (Eng.). Same as Craneman, 1.

Flat lode. A lode which varies in inclination from the horizontal to about 15°. *See also* Flat, 1.

Flatman (No. of Eng.). One who links (couples) the cars together at the flats, or levels. *See* Flat, 3. (Gresley)

Flat-nose shell. A cylindrical tool with a valve at the bottom, for boring through soft clay. (Raymond)

Flat of ore. A horizontal ore deposit occupying a bedding plane in the rock. *See also* Flat, 1. (Duryee)

Flat rails (Scot.). Tram rails. (Barrowman)

Flat-rods. A series of horizontal or inclined connecting rods, running upon rollers, or supported at their joints by rocking-arms, to convey motion from a steam engine or water wheel to pump rods at a distance. (Raymond)

Flat rope. A rope in which the strands are woven or sewed together to form a flat, braid-like rope. (C. M. P.)

Flats. **1.** (Eng.) Subterraneous beds or sheets of trap rock or whin. **2.** (No. Staff.) Tracts of coal seams which lie at a moderate inclination in districts containing highly inclined beds (Gresley). *See* Flat, 1. **3.** Narrow decomposed parts of limestones that are mineralized. (C. and M. M. P.)

Flat sheet (Eng. and Aust.). A flooring of boiler plate at crossings, and at the top and bottom of a shaft, to facilitate the handling of skip, or cars (Power). Also called Flat shut; Flat sheet; Turn sheet.

Flattened-strand rope. A wire rope whose strands are flattened or oval, and therefore presents an increased wearing surface over that of the ordinary round-strand rope. (C. M. P.)

Flattened-strand triangular rope. A wire rope of the flattened-strand construction in which the strands are triangular in shape. (C. M. P.)

Flattening-furnace. A furnace in which split cylinder glass is flattened out into sheets. (Standard)

Flatter (Aust.). *See* Flatman.

Flatting (Derb.). Hauling coal underground with horses and boys. (Gresley)

Flatting mill. 1. A rolling mill for producing sheet metal. 2. A mill in which grains of metal are flattened by steel rolls, and reduced to metallic dust. (Webster)

Flat trimmer. A workman who stands in a car in which coal is being loaded from a chute, whose duty it is to pick out slate, sulphur and other impurities found in the coal (Bowden *v.* Kewanee Coal & Min. Co. 157, Illinois App., p. 483)

Flat vein. Same as Vein, 2, and Flat, 1.

Flat-wall (Corn.). A local term (in St. Just) for footwall. (Raymond)

Flatware. In ceramics, plates, dishes, saucers, etc., as distinguished from hollow ware. (Century)

Flat working (Scot.). A working of moderate inclination (Barrowman). *See* Flat, 1; *also* Flat lode.

Flaw. *See* Fault.

Flaxseed coal. A fine size of anthracite coal. (Webster)

Flaxseed ore. *See* Clinton ore.

Fleak (Derb.). A thatched cover to protect the miners while breaking and washing ore. (Mander)

Fleaking (Eng.). Thinning the pillars of coal before abandonment (Bainbridge). A variation of flake. *See* Flitching.

Flecha (Mex.). Machinery shafting. (Dwight)

Fleek (Mid.). Coal or other rock is said to "fleek off" when humps or masses of it fall from a slip or fault in the workings without giving warning, or without much labor in cutting (Gresley). A variation of flake.

Fleet. The movement of a rope sidewise when winding on a drum. (C. M. P.)

Fleet angle (Aust.). The angle between the two ends of a winding drum as a base, and the head frame pulley or sheave as the apex. (Power)

Fleet wheel. A grooved wheel or sheave that serves as a drum and about which one or more coils of a hauling rope pass. (C. M. P.)

Fleitman's test. A test for arsenic. It is performed in a small tube, and if arsenic is present, arsine is evolved which makes a brown stain on a paper moistened with silver nitrate. (Webster)

Flemish brick. A hard, yellow paving brick. (Standard)

Flenú coal (Belg.). A long-flame smoky variety of bituminous coal occurring abundantly in the Belgian coal fields. Similar coal is found in Wales. (Page)

Flerry. To split, as slate. (Standard)

Flete (Sp.). 1. Carriage of freight, usually freight by mules or horses. 2. Freight charges. (Halse)

Fletz (Ger. *Flötz*). A bed or stratum. As employed by Werner, a layer or bed inclosed conformably in a stratified series, but differing in character from the rocks in which it occurs. (Century)

Flexible. As applied to the characteristic of tenacity in minerals, means that the mineral will bend without breaking, and remain bent, as talc. (Dana)

Flexible joint. Any joint between two pipes that permits one of them to be deflected without disturbing the other pipe. (Nat. Tube Co.)

Flexible sandstone. A fine-grained variety of itacolumite. (Standard)

Flexible silver ore. Same as Sternbergite.

Flexure. The bending or folding of strata under lateral pressure. (Standard)

Flinders diamonds (Tasmania). A variety of topaz. (Power)

Flint. 1. A dense fine-grained form of silica which is very tough and breaks with a conchoidal fracture and cutting edges. Of various colors, white, yellow, gray, and black. *See also* Chert. (U. S. Geol. Surv.)
2. (Shrop.) Fine-grained sandstone suitable for building purposes. (Gresley)

Flint mill. 1. In pottery works, a mill in which flints are ground. 2. A device in which flints on a revolving wheel produce a shower of sparks incapable of igniting firedamp, and once used to light miners at work. (Webster). *See* Steel mill, 2.

Flintshire furnace. A reverberatory furnace with a depression, well, or crucible in the middle of the side of the hearth used for the roasting and reaction process on lead ores. (Raymond)

Flinty slate. A common slate containing more than the normal percentage of silica. (Humble)

Flitching (No. Staff,). Widening the sides of a heading. (Gresley)

Flitting (Aust.). Conveying a coal-cutting machine from one place to another. (Power)

Float. 1. The floating part of an apparatus for indicating the height of water in a steam boiler or other vessel. **2.** (Scot.) Intrusive trap rock either at the surface or between strata. (Barrowman)
3. (Eng.) A clean rent or fissure in strata unaccompanied by dislocation. (Gresley)
4. A term much used among miners and geologists for pieces of ore or rock which have fallen from veins or strata, or have been separated from the parent vein or strata by weathering agencies. Not usually applied to stream gravels. Used also as an adjective.

Float-copper. 1. (Lake Sup.) Fine scales of metallic copper (especially produced by abrasion in stamping) which do not readily settle in water. (Raymond)
2. Native copper found away from its original rock. *Compare* Float ore. (Webster)

Floater; Float mineral; Float ore. The British term for float, 4, *which see.*

Float-gold; Flour gold. Particles of gold so small and thin that they float on and are liable to be carried off by the water. (Hanks)

Floating reef. Masses of displaced bed rock lying among alluvial detritus. (Lock). *See* Float, 4.

Floating spurs (Aust.). Short-lived flat quartz veins. (Power)

Float mineral. *See* Floater; Float ore.

Float ore. Water-worn particles of ore; fragments of vein material found on the surface, away from the vein outcrop (Raymond). *See* Float, 4.

Floatstone. 1. A cellular quartz rock. The honeycomb quartz detached from a lode is often called floatstone by miners. (Skinner)
2. A variety of opal that floats on water; found in light spongy concretionary or tuberous masses. **3.** A bricklayer's rubbing-stone for working out the defects in a brick that has been cut. (Standard)

Flocculate. To aggregate in small lumps; said of soils and sediments (Webster). A term also used in the flotation process.

Flocculating agent. A substance which produces flocculation, as for example, the inorganic acids, and which thereby promotes settling. (Eng. Min. Jour., vol. 101, p. 431)

Flocculation. The technical term for the gathering of suspended particles into aggregations. A relative term as opposed to deflocculation. (Eng. and Min. Jour., vol. 101, p. 430)

Flocculent. Resembling wool. therefore, wooly. Coalescing and adhering in flocks. A cloud-like mass of precipitate in a solution. From *L. floccus*, a lock of wool. (Rickard)

Flock. Any small tufted or flake-like mass of matter floating in a solution, especially if produced by precipitation. (Standard)

Floe rock. A deposit of fragments of ganister situated on a steep hillside. A quartzite talus. *See* Ganister, 1. (Bowles)

Floe-till. *See* Till.

Floetz (Ger.). *See* Fletz.

Flojo (Sp.). 1. Weak, as applied to explosives. **2.** *Terreno flojo*, loose or treacherous ground. (Halse)

Flood gate. 1. (Eng.) A gate to let off excess of water in flood or other times. (C. and M. M. P.)
2. A gate to regulate the flow of water as in a race way. (Standard)

Flood plain. Flat ground along a stream, covered by water at the flood stage. (Webster)

Flookan; Flooking; Fluckan; Flukan (Corn.). *See* Flucan.

Floor. 1. The rock underlying a stratified or nearly horizontal deposit, corresponding to the foot wall of more steeply-dipping deposits. **2.** A horizontal, flat ore-body. **3.** A floor, in the ordinary sense, or a plank platform underground. (Raymond)
4. That part of any subterraneous gallery upon which you walk or upon which a tramway is laid. (Gresley)

Floor break. The break or crack which separates a block of stone from the quarry floor. (Bowles)

Floor cut. A cut by means of which a block of stone is separated from the quarry floor. *See* Floor break. (Bowles)

Flop gate. An automatic gate used in placer mining when there is a shortage of water. This gate closes a reservoir until it is filled with water, when it automatically opens and allows the water to flow into the sluices. When the reservoir is empty, the gate closes, and the operation is repeated. (Min. Sci. Press, vol. 114, p. 369)

Flor (Mex.). The richest scrapings from the bed of an *arrastre*. (Halse)

Flora. The plants collectively of a given formation, age, or region. *Compare* Fauna. (Roy. Com.)

Floran-tin (Corn.). Tin mineral scarcely visible in the rock; also tin ore stamped very small. (Raymond)

Floridin. Fullers' earth from Quincy and Jamieson, Florida, used in decolorizing petroleum products. (Bacon)

Flos ferri. A coralloid variety of aragonite. (Power)

Flosh (Corn.). A rude mortar, with a shutter instead of a screen, used under stamps. (Raymond)

Floss. 1. Fluid, vitreous cinder, floating in a puddling furnace. (Raymond)
2. A floss hole. 3. White cast-iron for converting into steel. (Webster)

Floss hole. A tap hole. (Raymond)

Flotation. The act or state of floating, from the French *flottaison*, water-line, and *flotter*, to float, to waft. (Rickard)

Flotation process. A concentration process that takes advantage of the principles of surface tension and colloid chemistry, with whatever allied principles may be involved, to separate mineral from gangue by means of floating it upon the surface of water or other solutions, while the gangue is induced to sink through the surface and settle separately (Megraw, p. 3). The process or processes by which the valuable minerals in a mass of finely ground ore can be caused to float on a liquid into which the finely ground ore is fed. Classified as Film flotation and Froth flotation (Ralston, U. S. Bur. Mines). Among the processes are the following: Cattermole, Crilley and Everson, De Bavay, Elmore (Old Process), Elmore (Vacuum Process), Froment, Goyder and Laughton, Horwood, Hyde, Macquisten, Minerals Separation, Ltd., Murex, Potter-Delprat, Robson and Crowder, Sanders and Wolf processes.

Flötz (Ger.). *See* Fletz; Floetz.

Flour copper. Very fine scaly native copper that floats on water and is very difficult to save in milling (Weed). *See* Float copper.

Floured. The finely granulated condition of quicksilver, produced to a greater or less extent by its agitation during the amalgamation process (Raymond). The coating of quicksilver with what appears to be a thin film of some sulphide, so that when it is separated into globules these refuse to reunite. Also called Sickening and Flouring. (Roy. Com.)

Floured mercury. *See* Floured.

Flour gold. The finest gold dust, much of which will float on water. *See* Float gold. (Skinner)

Flow. 1. That which flows or results from flowing; a mass of matter moving or that has moved in a stream, as a lava-flow. 2. In ceramics, the flux used to cause color to run and blend in firing. 3. A marshy moor; a morass; low-lying watery land. (Century)

Flowage structure. A rock-texture whose appearance indicates that the material was in a state of flow immediately previous to consolidation. Called also Fluidal structure. (Standard)

Flow-and-plunge structure. A variety of false bedding, consisting of short obliquely laminated beds deposited irregularly, at various angles of slope, the result of tidal action, accompanied by plunging waves. (Standard)

Flow-bog. A peat bog of which the surface is likely to rise and fall with every increase or diminution of water, as from rains or springs. (Century)

Flow cleavage. That cleavage dependent on the parallel arrangement of the mineral constituents of the rock, developed during rock flowage. *Compare* Fracture cleavage. (C. K. Leith, U. S. Geol. Surv. Bull. 239, p. 23)

Flower of iron. *See* Flos ferri.

Flowers of sulphur. A light-yellow pulverulent sulphur formed when vapor of sulphur is condensed. (Standard)

Flowers of zinc. *See* Zinc oxide.

Flowing furnace. A reverberatory with inclined hearth, used in Cornwall for treating roasted lead ores by the precipitation process. (Raymond)

Flowing well. An oil well in which pumping is not necessary to bring the oil to the surface. (Redwood, p. 244)

Flow lines. Lines of structure in igneous rocks indicating a flowing movement of the material immediately preceding final consolidation (Standard). *See* Flow-structure.

Flow-structure. A structure due to the alignment of the minerals or inclusions of an igneous rock so as to suggest the swirling curves, eddies and wavy motions of a flowing stream. Fluxion-structure is synonymous. (Kemp)

Flucan; Fluccan (Corn.). Soft clayey matter in the vein; a vein or course of clay. (Raymond)

Flucany lode. A lode having flucan on one or both walls, and sometimes in the center. (Power)

Flue. 1. A passage for air, gas, or smoke. (Raymond)
2. A British term used in the same sense as the term Tube is used in America. (Nat. Tube Co.)
3. (So. Wales). A furnace, as a large coal fire at or near the bottom of an upcast shaft for producing a current of air for ventilating the mine. (Gresley)

Flue bridge. The separating low wall between the flues and the laboratory of a reverberatory furnace. (Raymond)

Flue brush. A brush made of pieces of wire or steel used to cleanse the interior of a flue from scales and soot. (Century)

Flue cinder. Iron cinder from the reheating furnace, so called because it runs out from the low r part of the flue. (Raymond)

Fluedust. Dust composed of particles of unchanged or oxidized ore, volatized lead that has been converted into oxide, carbonate and sulphate, and of fuel (Hofman, p. 85). It may also include other volatilized products, as of arsenic, zinc, etc.

Flue linings. Low-grade fire-clay pipe of cylindrical or rectangular cross section used for lining flues. (Ries)

Flue plate; Flue sheet. A tube plate in a boiler for supporting the ends of the flue pipes. (Webster)

Flue sheet. *See* Flue plate.

Flue tops. A form of burned clay ware, often of ornamental character, placed on the top of chimney flues. (Ries)

Fluid. Having particles which easily move and change their relative position without separation of the mass, and which easily yield to pressure; capable of flowing; liquid or gaseous. (Webster)

Fluidal structure. The arrangement of mineral particles in an igneous rock caused by a movement or flow in the mass when it was but partially crystallized (Century). Also called Fluxion-structure, and Flow-structure.

Fluidimeter. An instrument devised by H. Joshua Phillips for determining the fluidity of oils at various temperatures. (Mitzakis)

Fluid inclusion. A liquid inclosed in a cavity, usually very minute, in a mineral. (Century)

Fluid ton. Thirty-two cubic feet. A unit to correspond with the short ton of 2,000 lbs., and of sufficient accuracy for many hydro-metallurgical, hydraulic and other industrial purposes, it being assumed that the water or other liquid under consideration weighs 62.5 lb. per cubic foot. (Eng. and Min. Jour., Jan. 4, 1919)

Flujo (Sp.). Flux. (Halse)

Flukan. Same as Flucan.

Fluke. A rod used for cleaning drill holes before they are charged with powder. (Davies)

Flume. 1. An inclined channel usually of wood and often supported on a trestle, for conveying water from a distance to be utilized for power, transportation, etc., as in placer mining, logging, etc. 2. A mill tail. 3. A ravine or gorge with a stream running through it. 4. To trans-

port in a flume, as logs. **5.** To divert by a flume, as the waters of a stream, in order to lay bare the auriferous sand and gravel forming the bed.

Fluming. *See* Flume, 4 and 5.

Fluor. A synonym for Florite. *See* Fluorspar.

Fluorapatite. Common apatite, containing fluorine with but little or no chlorine. (Webster)

Fluorescence. The emission of light from within a substance while it is being exposed to direct radiation, or, in certain cases, to an electrical discharge in a vacuum tube. (Dana)

Fluorine. An element of the chlorine family, isolated as a pungent, corrosive gas, pale greenish-yellow in color. Symbol, F; atomic weight, 19.0; specific gravity, 1.31. (Webster)

Fluorine minerals. Minerals containing fluorine, such as apatite, amblygonite, chondrodite, cryolite, fluorite, lepidolite, topaz, and others. (A. F. Rogers)

Fluorite. *See* Fluorspar.

Fluorspar; Fluorite. The mineral calcium fluoride, CaF_2. Color commonly purple, green, or white (U. S. Geol. Surv.). It is the fourth in the scale of hardness, or next higher than calcite, and may be scratched by a steel point.

Fluran. *See* Floran-tin.

Flush. **1.** To operate a placer mine, where the continuous supply of water is insufficient, by holding back the water and releasing it periodically in a flood. **2.** To fill underground spaces, as in coal mines, with material carried by water, which after drainage forms a compact mass. (Webster)
3. To clean out a line of pipes, gutters, etc., by letting in a sudden rush of water. **4.** The splitting of the edges of stone under pressure. **5.** Forming an even continuous line or surface. (C. and M. M. P.)
6. (Mid.) A small flash due to ignited fire damp. (Gresley)
7. *See* Hydraulic mine-filling.

Flush production. The yield of an oil well during the early period of production. (Redwood, p. 243)

Fluthwerk (Ger.). Searching for ore in streams and river beds. (Davies)

Fluting. A smooth, gutter-like channel or deep smooth furrow worn in the surface of rocks by glacial action. (Roy. Com.)

Fluvial. Of, or pertaining to rivers; growing or living in streams or ponds; produced by river action, as a fluvial plain. (Webster)

Fluviatile. Growing near or belonging to rivers or fresh water; caused or produced by the action of a river; fluvial. (Standard)

Fluviatile deposits. Sedimentary deposits laid down by a river or stream. (Ransome)

Fluvioglacial. Produced by streams which have their source in glacial ice. (Webster)

Fluvio-marine. Formed by the joint action of a river and the sea, as in the deposits at the mouths of rivers. (Thompson)

Fluvioterrestrial. Of or pertaining to the land and fresh waters of the earth; not marine. (Standard)

Flux. **1.** A salt or other mineral, added in smelting to assist fusion, by forming more fusible compounds. (Raymond)
2. Bitumens, generally liquid, used in combination with harder bitumens for the purpose of softening the latter. *See* Asphaltic fluxes; Paraffin fluxes. (Bacon)

Fluxing ore. An ore containing an appreciable amount of valuable metal, but smelted mainly because containing fluxing agents required in the reduction of richer ores. (Weed)

Fluxion structure. Same as flowage structure. A structure that includes such phenomena as flow-lines, parallel orientation of phenocrysts, banding, elongation of vesicles, etc. (Standard). *See* Fluidal structure.

Flux-spoon. A small ladle for dipping up a sample of molten metal for testing. (Century)

Fly. **1.** (Mont.) A gate or door in a hopper for diverting ore, rock, or coal from one bin or conveyor to another. **2.** A piece of canvas drawn over the ridge-pole of a tent, doubling the thickness of the roof, but not in contact with it except at the ridge-pole. **3.** The flap or door of a tent. (Century)

Fly doors (No. of Eng.). Doors in working roadways, opening either way. (Gresley)

Flying cradle (Eng.). *See* Cradle, 1 and 2.

Flying reef (Aust.). A broken, discontinuous, irregular vein. (Power)

Foach (Eng.). Nearly synonymous with the old Cornish word, "Pock," "Pokkin," to push. A narrow level is called a "Foching little level." When a miner has not obtained what he considers a full price for his contract he would be likely to say, "'Twill do 'pon a foach," *viz.* it will do on a push. (Hunt)

Foal (Newc.). A young boy employed in putting coal. (Raymond)

Foaley bant (Derb.). A group of three or four boys sitting in chain loops attached to a hemp rope a few feet above the heads of a group of men (also riding in chains attached to the same rope) in which position they formerly rode up and down a mine shaft. (Gresley)

Foam. A collection of minute bubbles resulting from strong agitation of a liquid (Standard). A term used in the flotation process, meaning to froth; to foam.

Foaming earth. A synonym for Aphrite (Chester). *See* Earth foam.

Foam-spar. Same as Aphrite.

Foco (Mex.). Electric arc or incandescent lamp. (Dwight)

Fodder. **1.** (No. of Eng.) A unit employed in expressing weights of metallic lead, and equal to 21 hundredweight of 112 pounds avoirdupois. (Raymond)
2. Eight pigs of cast iron. (Webster)

Foddom; Faddum (Scot.). Fathom.

Fogaña de horno (Peru). The fire pit of a furnace. (Dwight)

Fogata (Mex.). Fumes from blasting. (Dwight)

Foge (Corn.). A forge for smelting tin. (Raymond)

Fogón (Sp.). A hearth; fire box. (Dwight)

Fogonero (Mex.). A boiler-fireman. (Dwight)

Foil. Metal, in very thin pliable sheets or leaves; as, tin foil; gold foil. (Standard)

Foil-stone. An imitation jewel. (Century)

Fold. Rocks or strata which have been bent into domes and basins or rolls. This structure is observed mainly in mountainous regions, and is characteristic of both the altered and unaltered sedimentary rocks (Buckley). Strictly, a strong flexure of a stratum, with steeply inclined sides. Loosely and more commonly any flexure of a stratum. (Standard)

Folding boards (Scot.). Shuts; a shifting frame on which the cage rests, in or at the top of a shaft (Barrowman). Chairs; dogs; keeps; keps.

Foliated. Leaf-like. The meaning is similar to that of laminated, but the latter generally indicates a finer or more parallel division into layers, foliated being applied rather to the approximate parallelism of the layers in such rocks as gneiss and schist. (Roy. Com.)

Foliated coal. Coal occurring in thin plates or layers.

Foliates. A term suggested by Bastin as a convenient and comprehensive one to include all rocks showing foliated structure other than bedding planes. (Watson)

Foliation. **1.** The banding or lamination of metamorphic rocks as distinguished from the stratification of sediments. (Kemp)
2. A crystalline segregation of certain minerals in a rock, in dominant planes, which may be those of stratification (stratification-foliation) of joints (joint-foliation), of shearing (cleavage-foliation), or of fracture under the strain of flexure (faulting-foliation). (Standard)

Folkstone marl (Eng.). A stiff marl, varying in color from light gray to a dark blue; also known as gault. It abounds in fossils. (Humble)

Follower. A drill used for making all but the first part of a hole, the latter being made with a drill of larger gauge, known as a starter. (Bowles)

Following (Scot.). An overlying stratum which falls or comes down as the mineral is extracted from under it. (Barrowman)

Following dirt (Lanc.). A thin bed of loose shale, etc., forming the roof of a coal seam, which has to be taken down in the workings in order to prevent it falling. (Gresley)

Following-in (Eng.). Said of a shift arriving at a working place before the previous shift has finished work. (Gresley)

Following stone. Roof stone that falls on the removal of the seam (C. and M. M. P.). *See* Following.

Following-up bank (York.). A breadth of about 6 yards of coal taken off the working face. (Gresley)

Following-up-the-whole with the broken. *See* Bord-and-pillar method.

Follow-up tag. The cardboard tag placed in the cartons, boxes, or cases of blasting supplies, used for identifying the date and place of manufacture. (Du Pont)

Fomento (Sp.). Protection, support, encouragement; *Junta de F. y administración*, board of encouragement and administration of mining. (Halse)

Fondeo (Mex.). Temporary staging in a shaft. (Dwight)

Fondo. 1. (Mex.) Bottom, as of a mine. (Dwight)
2. (Sp.) Underground workings. 3. (Bol.) An amalgamating pan. (Lucas)

Fondón (Sp.) A wooden or stone tub or kettle with a copper bottom, used for grinding and amalgamating silver ores (Standard). A large copper vessel, in which hot amalgamation is practiced. (Raymond)

Fonolita (Sp.). Phonolite. (Dwight)

Fontaine powder. A variety of picrate powder containing potassium chlorate. (Webster)

Fool's gold. Pyrite, a sulphide of iron, FeS_2.

Foot. 1. A measure of 12 inches; one-third of a yard. (Webster)
2. (Corn.) An ancient measure containing 2 gallons or 60 lbs. of black tin. (Davies)
3. The footwall.
4. A "foot" is twelve inches in length on the vein, including its entire width, whether six inches or sixty feet, and its whole depth down toward the earth's center. (Standard)

Foot-acre. *See* Acre-foot.

Footage. The payment of miners by the running foot of work (Standard). *Compare* Yardage, and Cordage.

Foot ale (Derb.). Ale bought with the first day's wages after a man begins work. All the miners join in a jollification. (Hooson)

Foot blocks (Eng.). Flat pieces of wood placed under props, in tunneling, to give a broad base, and thus prevent the superincumbent weight from pressing the props down. (Simms)

Foot-hill. A distinct lower part of a mountain; one of the hills or minor elevations of a mountain range which lie next the adjacent lower land and form a transition between that and the higher portions. Commonly used in the plural. (Century)

Foot hole. Holes cut in the sides of shafts or winzes to enable miners to ascend and descend. (C. and M. M. P.)

Foot-hook (So. Staff.). The large hoisting-rope hook that is attached to the skip. (Min. Jour.)

Foot-hook chain (So. Staff.). A strong chain at the end of the rope, and connected with the foot-hook. (Min. Jour.)

Footing. A spreading course or courses forming the foot or foundation of a wall. (Standard)

Foot-piece. *See* Sill, 2.

Foot-pound. A unit of energy, or work, being equal to the work done in raising one pound avoirdupois against the force of gravity the height of one foot. (Webster)

Footrill; Futteril; Footrail. 1. (Eng.) The entrance to a mine by means of a level driven into a hillside. An adit. 2. A dip road, up which coal is brought. (Gresley)

Foot rod (Scot.). An iron rod at the foot of pump rods to which the bucket is attached. (Barrowman)

Footwall (Corn.). The wall under the vein (Raymond). Sometimes called Underlying wall.

Footway. The series of ladders and platforms by which men enter or leave a mine (Raymond). Also a footpath along a haulage way.

Foralite. A marking formed in sandstone and other formations, possibly due to the burrowing of a worm; a boring in a stone. (Standard)

Forbesite. A dull grayish-white, hydrous nickel-cobalt arsenate, $H_2(Ni,Co)_2As_2O_8+8H_2O$, having a fibrocrystalline structure. From Atacama. (Dana)

Forced production. To work a mine so as to make it produce a greater output than can be maintained. (Milford)

Force fan. A blowing fan.

Force piece. Timber placed diagonally across a shaft or drift for securing the ground. (Davies)

Force pump. A pump that forces water above its valves. (C. and M. M. P.)

Forcer. **1.** A small hand-pump used in Cornish mining. **2.** The solid piston of a force-pump. (Standard)

Forcherite. An orange-yellow opal colored with orpiment. (Standard)

Forcing lift; Forcing set (Scot.). A set of pumps raising water by a plunger; a ram pump. (Barrowman)

Forcing set (Eng.). A force pump. *See* Forcing lift.

Fore bay. A reservoir or canal from which water is immediately taken to run a water wheel, a turbine, or the like. The discharging end of a pond or millrace. (Webster)

Forebreast (Scot.). The working face of a mine. (Barrowman)

Forechamber. An auxiliary combination for gas-fired boilers, that provides incandescent surface for lighting gas instantly when turned on after being shut off for any reason. Also called Dutch oven and Dog house. (Willcox)

Forefield (Newc.) The face of the workings. The forefield-end is the end of the workings farthest advanced. (Raymond)

Forefield end (Derb). The farthest extremity of mine workings. (Min. Jour.)

Forehammer (Scot.). A sledge hammer; commonly applied to the hammer used by a blacksmith's assistant. (Barrowman)

Forehead (Scot.). The face of a mine or level. (Barrowman)

Foreheadway (Eng.). *See* Headway, 1.

Forehearth. A projecting bay in the front of a blast-furnace hearth, under the tymp. In open-front furnaces it is from the forehearth that cinder is tapped. *See* Dam, 3, and Tymp, 1 (Raymond). An independent settling reservoir into which is discarded the molten material from the furnace, and which is heated from an independent source. The heavy metal settles to the bottom and the light slag rises to the surface. (Peters, p. 298)

Foreland. A promontory or cape; a headland. (Century)

Forellenstein. A variety of olivine-gabbro, consisting of plagioclase, olivine and more or less pyroxene. The dark silicates are so arranged in the lighter feldspar as to suggest the markings of a trout (from the German, *Forelle*.) (Kemp)

Foreman. A leader; the chief of a set of workmen who superintends the rest; an overseer. (Webster) *See also* Bank boss.

Fore mine; Fore-set mine (Scot.). A mine (entry or room) driven toward the rise of the strata. (Barrowman)

Forepale; Forepole. To drive timbers or planks horizontally ahead at the working face, to prevent the caving of the roof in subsequent driving (Raymond). *See* Forepoling.

Forepole. *See* Forepale.

Forepoling. A method of securing drifts in progress through quicksand by driving ahead poles, laths, boards, slabs, etc., to prevent the inflow of the quicksand on the side and top, the face being protected by breastboards (Raymond). *See also* Forepale.

Fore-set beds. The series of inclined layers accumulated as sediment rolls down the steep frontal slope of a delta. *See* Bottom-set beds, and Top-set beds. (Watson, p. 274)

Fore shift (Eng.). The first shift of hewers (miners) who go into the mine from 2 to 3 hours before the drivers and loaders. (G. C. Greenwell)

Foresight. **1.** Any reading taken to determine the elevation of a point on which a leveling rod is held; better called minus sight, since it must be subtracted from the elevation of the line of sight to give the elevation of the point. **2.** Any sight or bearing taken in a forward direction by a compass or transit. (Webster)

Foresite. A zeolitic mineral from the Island of Elba. It resembles stilbite. (Century)

Fore-spar plate. *See* Bloomery.

Forest marble. An argillaceous limestone which when cut along certain planes shows the dark coloring matter so distributed as to be imitative of woodlands and forests; also called Landscape marble. (Merrill)

Forestop. (Derb.). To forepole.

Forewinning (Newc.). The first working of a seam in distinction from pillar drawing (C. and M. M. P.). Advance workings.

Forfeiture. Loss of some right, privilege, estate, etc., in consequence of some breach of condition, or other act. The act of forfeiting. (Webster)

Forfeiture of a mining claim takes place by operation of the law without regard to the intention of the locator whenever he fails or neglects to preserve his right by complying with the conditions imposed by law, and is made effectual by one who enters upon the ground after the expiration of the time within which the annual labor may be done, and completes a location before resumption of work by the original locator (Street *v.* Delta Min. Co., 42 Montana, p. 386). A forfeiture of a mining claim consists in the consequence attached by law to certain facts, and the intention of the claimant as to whether or not a forfeiture in fact exists is wholly immaterial, and in this respect a forfeiture differs from abandonment (Navajo Indian Res. In re, 30 L. D., p. 515; U. S. Min. Stat., pp. 254–258). *Compare* Abandonment.

Forge. 1. An open fireplace or hearth with forced draft, for heating iron, steel, etc.; as, a blacksmith's forge.
2. A hearth or furnace for making wrought iron directly from the ore; a bloomery. (Standard)
3. (Eng.) That part of an ironworks where balls are squeezed and hammered and then drawn out into puddle-bars by grooved rolls. (Raymond)
4. To form by heating in a forge and hammering; to beat into some particular shape, as a mass of metal. (Century)

Forge cinder. The dross or slag from a forge or bloomery. (Webster)

Forgemaster. The owner or superintendent of a forge or iron-works. (Century)

Forge roll. One of the train of rolls by which a slab or bloom of metal is converted into puddled bars. (Century)

Forge scale. A loose coating of oxide which forms on heated iron during the process of forging; hammer scale. (Standard)

Forge train. In iron-puddling, the series of two pairs of rolls by means of which the slab or bloom is converted into bars. (Century)

Forging. A piece of forged-metal work; a general name for pieces of hammered steel. (Century)

Forging-press. A press for forging small metal articles. (Century)

Fork. 1. (Corn.) The bottom of the sump. 2. (Derb.) A piece of wood supporting the side of an excavation in soft ground. (Raymond)
3. A tool with many tines or prongs used for separating lump coal from slack. (Steel)
4. (Scot.) A tool used for changing buckets. (Barrowman)
5. A prop with a Y-shaped end. (Skinner)
6. An appliance used in freefall systems of drilling which serves to hold up the string of tools during connection and disconnection of the rods. (Mitzakis)
7. (Eng.) To pump water out of a mine. A mine is said to be "in fork," or a pump "to have the water in fork," when all the water is drawn out of the mine. (Webster)

Fork-filled (Aust.). Coal filled into skips with a fork, having the prongs about 1¼ inches apart. This separates the bulk of the slack from the round coal, which should not contain more than 10 per cent of fine coal. (Power)

Form. 1. All the faces of a crystal which have a like position relative to the planes, or axes, of symmetry (Dana). The sum of those planes whose presence is required by the symmetry of crystal when one of them is present. (Standard)
2. A mold, pattern, or model; something to give shape, or on or after which things are fashioned. 3. A blank or schedule to be filled out by the insertion of details. (Century)

Formación. 1. (Sp.) Formation. 2. (Colom.) Altered country rock forming the filling of a lode. Analogous to "mullock" of Australia. (Halse)

Formal (Mex.). Regular; undisturbed. (Dwight)

Formalizar (Mex.). To formalize a contract or other legal paper. (Dwight)

Formation. As defined and used by the U. S. Geological Survey, the ordinary unit of geologic mapping consisting of a large and persistent stratum of some one kind of rock. It is also loosely employed for any local and more or less related group of rocks. In Dana's Geology it is applied to the groups of related strata that were formed in a geological period (Kemp). Any assemblage of rocks which have some character in common, whether of origin, age or composition (Lyell). In chronological geology formations constitute as it were the units, and several formations may go to make up a system. The word is often loosely used to indicate anything which has been formed or brought into its present shape. (Roy. Com.)

Formene. Methane. (Standard)

Formosa marble. A high grade of marble of a dark-gray and white color variously mottled and blotched with yellow and red; from Nassau, Germany (Merrill)

Formula weight. The sum of the atomic weights of the elements of a compound.

Forno (Port.); **Horno** (Sp.). 1. An oven or kiln. 2. A furnace; *F. alto*, a blast furnace. (Halse)

Forro (Mex.). Lagging. (Dwight)

Forsterite. A magnesium silicate mineral, Mg_2SiO_4, occurring in white crystals at Vesuvius; in greenish or yellowish embedded grains at Bolton, Mass., as boltonite. (Dana)

Fósforo (Sp.). Phosphorus. (Dwight)

Fosil (Sp.) 1. Fossil. 2. Any mineral or rock. (Halse)

Fosilífero (Sp.). Fossiliferous. (Dwight)

Fosse (Fr. and Belg.). Literally, a ditch, moat, or trench. Frequently applied to a colliery or coal mine. (Gresley)

Fossick. 1. (Aust.). To work out the pillars of abandoned claims, or work over waste heaps in hope of finding gold. (Standard)
2. (Eng.) In gold mining to undermine another's digging. 3. A troublesome person. (Century)

Fossicker (Aust.). A sort of mining gleaner who overhauls old workings and refuse heaps for gold that may be contained therein. (Davies)

Fossil. 1. Originally, any rock, mineral, or other object dug out of the earth. 2. Now, any remains, impression, or trace of an animal or plant of past geological ages which have been preserved in a stratified deposit or in a cave. (Webster)
3. (Mid.) A local term formerly used for a particular kind of rock bed found in sinking. Cank, lignite, etc., were called by this name. (Gresley)

Fossil copal. *See* Copalite

Fossil farina. *See* Bergmehl, 2.

Fossil flour. Infusorial earth. (Century)

Fossil glacier. A remnant of the Pleistocene ice-sheet on the coastal plains of northern Siberia. It is covered by soil and vegetation, interbedded with clays, and in the ice are found the carcasses of the mammoth and the hairy rhinocerous, retaining flesh, skin and hair. (Century)

Fossiliferous. Containing organic remains. (Comstock)

Fossilize. 1. To reduce to a fossil; convert into a fossil. 2. To become antiquated or obsolete. (Century)

Fossil ore. Fossiliferous red hematite. (Raymond)

Fossil paper. *See* Mountain paper.

Fossil resin. A resin found in a geological deposit, as amber and copalin. (Standard)

Fossil salt. Same as rock salt. (Century)

Fossil wax. *See* Ozocerite.

Fother (No. of Eng.). 1. A measure of coal (17¾ cwt.), being an ordinary cartload for one horse. (Gresley)
2. A weight by which lead and some other metals were formerly sold, in England, varying from 19 to 24 cwt., and divided in 30 fotmals. (Webster)

Fotmal (Eng.). An old weight for lead, etc., usually about 70 pounds. *See* Fother, 2. (Webster)

Foucault current. In electricity, an eddy current. (Webster)

Foul. A condition of the atmosphere of a mine, so contaminated by gases as to be unfit for respiration (Gresley). Impure.

Foul coal (Eng.). Faulty, or otherwise unmarketable coal. (Gresley)

Foulness. 1. (Scot.) An impurity in a seam; an irregularity in the physical character of a seam, caused, *e. g.*, by numerous lypes or small hitches. (Barrowman)
2. (Eng.) Fire damp.

Fouls (Eng.). A condition in which seams of coal disappear for a certain space and are replaced by some foreign matter (Gresley). *See* Fault, 2.

Found. 1. (Eng.) When sinking or driving to find or prove a coal seam, as soon as it is encountered it is said to have been found. (Gresley)
2. To form in a mold, as articles of cast iron, by melting the metal and pouring; to cast. (Standard)

Foundation. 1. A structure upon which a building or machine is erected, usually wholly or principally of masonry; that part of the building below the surface of the ground, or the portion that constitutes the base; sometimes a platform on which the upper portions rest. (Standard)
2. (Mid.) The shafts, machinery, building, railways, workshop, etc., of a colliery, commonly called a plant. (Gresley)

Founder. 1. (Eng.). The first shaft sunk upon a vein. From this the miner possesses, and lays out, his ground. (Hunt)
2. One who practises the business of founding; one who makes castings; as, an iron-*founder*. (Standard)

Foundermere (Derb.). The first 32 yards of ground worked. (Min. Jour.)

Foundershaft. The first shaft sunk (Raymond). *See also* Founder, 1.

Founders shares. The few shares issued to the individuals organizing a stock company. In companies owned outright by other companies, founders shares are issued to as many individuals as are required to incorporate and hold the offices required for corporate management, as the laws do not permit a corporation, which is an artificial person, to form another corporation, or to serve as a director of another corporation. (Weed)

Founding. The act or process of casting metals. (Century)

Foundry. A manufacturing establishment in which articles are cast from metal: as, an iron *foundry;* brass *foundry.* (Standard)

Foundry iron. A dark grade of pig iron, rich in carbon, used for making castings. (Webster)

Fountain. A spring of water issuing from the earth. The source or head, as of a river (Webster). *See also* Gusher.

Fourchite. In petrology, an aphanophyric, basalt-like igneous rock containing phenocrysts of augite in a groundmass composed of hornblende, augite, and analcite, but no olivine. (La Forge)

Fourling. A twin crystal consisting of four individuals. (Standard)

Four-wheel jimmie (Penn.). A four-wheel railroad car made of wood. It was the first type of car made for the transportation of anthracite. (Nicolls)

Fowlerite. A zinc-bearing variety of rhodonite. (A. F. Rogers)

Fox mold (Eng.) A provincial name for the reddish greensand colored by an oxide of iron. (Roberts)

Foxtail. 1. (So Wales). The last cinder obtained in the Welsh process of refining iron in a charcoal forge. (Standard)
2. A grass, with sharp barbed seed, common in mining regions of California and other western States.

Fox wedge (Eng.). A long wedge driven between two other wedges with their thick ends placed in the opposite directions. It is also called stob-and-feather, or plug-and-feather. (G. C. Greenwell)

Foyaite. A variety of nephelite, syenite, containing hornblende, from Mt. Foya in the Monchique range of Portugal. (Kemp)

Fractile. Pertaining to cleavage or breakage, as in stone. (Standard)

Fractional distillation. An operation for separating a mixture of two or more liquids which have different boiling points (Century). Used extensively in petroleum distillation.

Fractionate. To separate (a mixture, as a liquid by distillation) into fractions having more or less fixed properties but not necessarily definite compounds; applied also to mixtures of rare earths. (Standard)

Fractionation. Chemical or physical separation by successive operations, each removing from a liquid some proportion of one of the substances. The operation may be one of precipitation, or of crystallization, or of distillation. (Century)

Fractura (Sp.). Fracture. (Dwight)

Fracture. The character or appearance of a freshly broken surface of a rock or mineral. Peculiarities of fracture afford one of the means of distinguishing minerals and rocks from one another. (Roy. Com.)

Fracture cleavage. The capacity to part along parallel planes, usually in intersecting sets, along which there has been either incipient fracturing or actual fracturing followed by cementation or welding. This structure is developed in shearing planes. It may or may not be accompanied by a parallel arrangement of mineral. *Compare* Flow cleavage. (C. K. Leith, U. S. Geol. Surv., Bull. 239, p. 139)

Fragmental. Formed from fragments of preexisting rocks, such as sandstones and breccias. Clastic is synonymous. (Kemp)

Fragua (Sp.). Forge; blacksmith's shop. (Dwight)

Fraidronite. A name used by early French geologists for a variety of minette. (Kemp)

Frame; Rack (Eng.). A table composed of boards slightly inclined, over which runs a small stream of water to wash off waste from slime tin (Hunt). A buddle. *See* Tin frame.

Frame dam (Eng.). A solid, watertight stopping or dam in a mine to keep back and resist the pressure of a heavy head of water. (Gresley)

Frame set. The legs and cap or cross-bar arranged so as to support the roof of an underground passage. Also called Framing or Set. (Steel)

Frame table. An inclined table, used in separating ore slimes by running water; a miner's frame. (Standard)

Frame tubbing (Eng.). Solid wood tubbing, entirely composed of rings or curbs of wood about 6 by 8 inches square built up in segments, and wedged to keep it watertight. (Gresley)

France screen. A traveling-belt screen in which the screencloth is mounted on a series of separate pallets, thus avoiding bending the screen as it goes over the pulleys. (Liddell)

Francisci furnace. A furnace for the treatment of roasted blende and other fine ore. It consists of a series of superimposed muffles formed by arches of magnesia brick and built into the walls of the furnace and communicating with a common condensation chamber. (Ingalls, p. 485)

Frangibility. The degree of facility with which a rock can be broken, or yields to the hammer. (Oldham)

Franja (Port.). Paystreak. (Halse)

Franjilla (Peru). Argentiferous galena. (Halse)

Franklinite. An iron-manganese-zinc oxide mineral, $(Fe, Zn, Mn)O.(Fe, Mn)_2O_3$. (U. S. Geol. Surv.)

Frasch process. 1. A desulphurizing process which consists of distilling oil over lead oxide, followed by refining with sulphuric acid. (Mitzakis)

2. A process for mining sulphur in which superheated water is forced into the sulphur deposits, for the purpose of melting the sulphur. The molten sulphur is then pumped to the surface. Used extensively in Louisiana and Texas.

Free. 1. Native, uncombined with other substances, as free gold or silver. (Raymond)

2. Coal is said to be "free" when it is loose and easily mined, or when it will "run" without mining. (Chance)

Free air. Ordinary air at sea level and at a temperature of 60° F. (Gillette, p. 213)

Free-burning coal. Coal which does not cake when burning. (Bacon)

Free cleek (Scot.). The right of a miner to get hutches (cars) without waiting his turn. (Barrowman)

Free coal. 1. (Scot.) Coal on which lordship or royalty is not paid. 2. (Scot.) Coal easily broken or which burns freely (Barrowman). *See also* Free-burning coal.

Free crushing. Crushing under conditions of speed and feed such that there is plenty of room for the fine ore to drop away from the coarser part and thereby escape further fine crushing. *See also* Choke crushing. (Richards, p. 98)

Free-drainage level. An adit. A level which drains through an adit. (Gresley)

Free fall. 1. An arrangement by which, in deep boring, the bit is allowed to fall freely to the bottom at each drop or down-stroke. (Raymond)
2. The process of operating the drill. Often called Russian, Canadian, and Galician free fall.

Free-flowing volcano. One in which the flow is moderately constant with a minimum of violence. (Standard)

Free gold. Gold uncombined with other substances (Skinner). Placer gold.

Freeing a mear (Eng.). The giving of the first dish of ore to the lord (owner) of the mine. (Hunt)

Freeing of ore (Derb.). Cutting out soft material from one side of the vein in order to make it easier to mine the ore. (Hooson)

Free level (Eng.). An adit. (C. G. Greenwell)

Free-milling. Applied to ores which contain free gold or silver, and can be reduced by crushing and amalgamation, without roasting or other chemical treatment. (Raymond)

Free miner. 1. (Can.) A person or association holding a license and thereby authorized to prospect on unoccupied lands and to carry on mining operations subject to any other conditions imposed by the law. A licensed miner. (Webster)
2. (Forest of Dean) A man born within the Hundred of St. Briavels, in the county of Gloucester, who has worked a year and a day in a mine. (Gresley)

Free share (Som.). A certain proportion of a royalty on coal, paid to lessor by lessee. (Gresley)

Freestone. Any stone, especially a sandstone, that may be cut freely in any direction without a tendency to split.

Free way. A direction or easy splitting in a rock. (Bowles)

Freeze. To solidify, as of a molten charge in a furnace. (Weed)

Freiberg amalgamation. *See* Barrel process.

Freibergite. A silver-rich tetrahedrite. *See* Tetrahedrite. (U. S. Geol. Surv.)

Freieslebenite. A lead-silver sulphantimonide mineral, approximately $5(Pb,Ag_2)S.2Sb_2S_3$. Contains 24.5 per cent silver (U. S. Geol. Surv.)

French blue. *See* Ultramarine, 2.

French chalk. A kind of talc used by tailors. (A. F. Rogers)

Freno (Sp.). 1. A bridle. 2. A brake on a hoist; *F. de seguridad,* a safety brake. (Halse)

Frente (Mex.). Breast of working or face of drift; *F. de guia,* main or haulage level in a mine. (Dwight)

Frenzied (So. Staff.). Said of coal crushed by the creep or subsidence of the cover. (Gresley)

Fresh air. Air free from the presence of deleterious gases (Roy). Pure air.

Freshet. A sudden rise in a stream or river, caused by heavy rains or melting snow in the mountains or highlands, and which does great damage to the works connected with hydraulic mining unless guarded against in time. (Milford)

Freudenberg plates. Iron plates suspended in dust chambers for the purpose of settling dust and condensing fumes that escape from the furnace with the gases. (Hofman, p. 390)

Freyalite. A rare radio-active silicate of thorium, the cerium metals and other elements, found in Norway. (Webster)

Friable. Easy to break, or crumbling naturally (Roy. Com.). Said of certain minerals.

Friction breccia. Angular material derived from earth-movements which crush and break the rock on the two sides of a fault. (Watson, p. 100)

Friedelite. A massive, cleavable to closely compact, hydrated manganese silicate, $H_7(MnCl)Mn_4Si_4O_{16}$. (Dana)

Frijol. 1. (Sp.) A kidney bean. 2. (Mex.) A miner's term for a red conglomerate. (Halse)

Frijolillo (Guanajuato). Round fragments of limestone with calcareous cement. (Dwight)

Fringe. A thin sprinkling of isolated or grouped erratics (bowlders) in front of the extreme terminal moraine of a glacier. (Standard)

Frío (Mex.). 1. Cold. 2. In amalgamation, the condition of "sickened" mercury. (Dwight)

Fríos (Bol.). Ores containing but little or no iron. (Halse)

Frisol (Colom.). Any stone, polished by water, and imitating the form of a kidney bean. (Halse)

Frit. 1. The material of which glass is made after having been calcined or partly fused in a furnace before vitrification. 2. To prepare by heat; to fuse partially. (Webster)

Frit brick. A lump of calcined glass materials brought to a pasty condition in a reverberatory furnace preliminary to the perfect vitrification in the melting pot. (Webster)

Fritting. The formation of a slag by heat with but incipient fusion. (Raymond)

Fritting furnace. The reverberatory furnace in which the materials for making glass are fritted. (Standard)

Frog. 1. A device made of rails secured to a plate, or bolted together through distance pieces, forming a connection of one track with another branching from or crossing it. (Webster)

Froment process. A flotation process in which a sulphide ore is agitated in water with a little oil and sulphuric acid, the sulphide particles become oiled and attach themselves to and are floated by gas bubbles. Calcite is added to the ores when needed. Minerals Separation Ltd., bought this patent in 1903. (Liddell)

Front. 1. A designation for the mouth or collar of a bore hole. (Du Pont) 2. *See* Face, 4.

Frontal apron. Same as Apron, 8.

Frontal hammer; Frontal helve (Eng.). A forge-hammer lifted by a cam, acting upon a "tongue" immediately in front of the hammer-head. (Raymond)

Front-and-back shift (Aust.). A system in which one of a pair of miners comes to work two hours before the other, while the latter remains two hours after the first has gone home; the object being to keep the trammers going, who work 10 hours, against the miners' eight hours. (Power)

Front entry. *See* Entry.

Frontón (Mex.). Face of a drift, etc. Any working-face. (Dwight)

Frost pin. A short heavy iron pin used by surveyors to make a hole in frozen ground so that a wooden peg may be driven without breaking. (B. F. Tibby)

Froth. A collection of bubbles resulting from fermentation, effervescence, or agitation (Rickard). A term used in flotation.

Frother. An oil which makes a foam or froth. (Megraw, p. 37)

Froth flotation. A flotation process in which the minerals floated gather in and on the surface of bubbles of air or gas driven into or generated in the liquid in some convenient manner. *See* Film flotation. (O. C. Ralston, U. S. Bur. Mines)

Frozen. 1. Congealed with cold, as the hard surface over cooling molten metal. (Webster)
2. Immovable by reason of expansion consequent upon imperfect lubrication; said of a journal and its bearing. (Standard)
3. Said of vein material which adheres closely to the inclosing walls. (Shamel, p. 150)

Frozen ore. *See* Frozen, 3.

Frozen coal (Ark.). Coal which strongly adheres to the rock above or below it (Steel). *See* Frozen, 3.

Fruchtschiefer. A German name for a variety of spotted, contact schists in the outer zone of the aureole. (Kemp)

Frue vanner. An ore-dressing apparatus consisting essentially of a rubber belt traveling up a slight inclination. The material to be treated is washed by a constant flow of water while the entire belt

is meanwhile shaken from side to side. Other vanners of the side-shake type are the Tulloch, Johnston, and Norbom. (Liddell)

Frush (Scot.). Brittle; having unusually little tenacity; soft and easily broken up. (Barrowman)

Frutos (Sp.). Product, ore, mineral; *Veta en frutos* (Mex.), a vein carrying pay ore. (Halse)

Fuel economizer. A feed-water heater consisting of pipes around which the gases of combustion from a furnace pass. (Standard)

Fuel feeder. A contrivance for supplying a furnace with fuel in graduated quantities (Century). A mechanical stoker.

Fuel gas. Gas used for heating or cooking, as distinguished from illuminating-gas. (Standard)

Fuelle (Mex.). Bellows. *See* Barquin. (Dwight)

Fuel ratio. The amount of heating-capacity in a fuel as compared with another fuel taken as a standard. (Century)

Fuente (Sp.). A spring of water. (Halse)

Fuerte (Sp.). Strong; applied to amalgam needing more mercury. Also applied to powerful explosives. (Halse)

Fuga (Sp.). An excess blast in a furnace whereby the charge is cooled. (Halse)

Fulguration. A sudden glistening of molten gold or silver at the close of cupellation (Standard). *See* Blick.

Fulgurite. Little tubes of glassy rock that have been fused from all sorts of other rocks by lightning strokes. They are especially frequent in exposed crags on mountain tops. The name is derived from the Latin for thunderbolt. (Kemp)

Fuller. A blacksmith's tool with a round edge, used in grooving or spreading hot iron; a swage or creaser. (Standard)

Fuller's earth. A fine earth resembling clay, but lacking plasticity. It is much the same chemically as clay, but has a decidedly higher percentage of water (Kemp). It is high in magnesia and possesses the property of decolorizing oils and fats by retaining the coloring matter.

Fulminante (Sp.). A blasting cap or detonator. (Halse)

Fulminate. 1. An explosive compound of mercury, $HgC_2N_2O_2$, which is employed for the caps or exploders, by means of which charges of gunpowder, dynamite, etc., are fired. (Raymond)

2. To make a loud sudden noise; to detonate; to explode with a violent report. (Webster)

Fumarole. A hole or spot in a volcanic or other region, from which fumes issue (Webster). The exhalation consists of water-vapor, with such gases as nitrogen, hydrogen, free hydrochloric acid, hydrofluoric acid, and silicon fluoride (Vogt). *See* Solfataras, Mofette, and Soffioni.

Fumarolic. Pertaining to or issuing from a fumarole. (Standard)

Fume. 1. The gas and smoke, more especially the noxious or poisonous gases given off by the explosion or detonation of blasting powder or dynamite. The character of the fume is influenced largely by the completeness of detonation. The degree of confinement of the charge and the size of the detonator has a great influence on the character of the fumes produced. (Du Pont)

2. Consists of metals or metallic compounds that have been volatilized at the high temperatures of the furnaces, condensed at lower temperatures, and carried by furnace gases into the flues. Sulphur trioxide and elemental sulphur, driven off from furnaces and condensed, are also classed as fume. (Bull. 98, U. S. Bur. Mines, p. 63)

In general, all the volatile constituents of the ore charge are represented. The fume frequently contains appreciable amounts of silver, which is decidedly volatile under certain conditions. The particles of fume are very fine and are under the stress of certain physical forces, so they do not settle easily, as most of the flue dust does, but in large proportion pass through the stack with the gases and spread over the surrounding country, unless special preventive methods are used, as is now generally done. (Fulton, Bull. 84, U. S. Bur. Mines, p. 12). *See* Metallurgical fume.

Fuming sulphuric acid. An acid made by dissolving sulphur trioxide in concentrated sulphuric acid. Nordhausen acid. (Webster)

Fundamental complex. *See* Basement complex.

Fundamental rocks. Those rocks forming the foundation, substratum, basis, or support of others. (Roy. Com.)

Fundente (Sp.). In metallurgy, a fusing ore; a flux. (Halse)

Fundición (Mex.). **1.** The process of melting silver into bars. **2.** *Sistema de F.*, smelting process; *F. en crudo*, smelting direct without roasting. **3.** A smelting works, foundry or assay office. **4.** Casting. (Halse)

Fundidor (Sp.). Smelter; founder; melter. (Halse)

Fundir (Sp.). To smelt, melt, or cast metals. (Halse)

Fundo minero (Mex.). All the *pertenencias* embraced under one title. (Dwight)

Funnel. The gate or pouring hole of a mold. (Standard)

Funnel box. A square funnel forming one of a series of gradually increasing size, for separating metal-bearing slimes according to fineness (Standard). *See* Spitzkasten.

Fuque (Mex.). The deepest point of excavation. (Dwight)

Fur; Furring (Eng.). A deposit of chemical salts and other material (sediment) upon the inner sides of pumps, boilers, etc. (Gresley)

Furar (Port.). To bore or drill for a blast. (Halse)

Furgen. A round rod used for sounding a bloomery fire. (Raymond)

Furgón (Mex.). Box or closed freight car. (Dwight)

Furlong. One eighth of a mile; that is, 40 rods; 10 chains, or 660 feet. (Webster)

Furnace. 1. A structure in which, with the aid of heat so produced, the operation of roasting, reduction, fusion, steam-generation, desiccation, etc., are carried on, or, as in some mines, the upcast air current is heated, to facilitate its ascent and thus aid ventilation. (Raymond)
2. (Eng.) A large coal fire at or near the bottom of an upcast shaft, for producing a current of air for ventilating a mine. (Gresley)

Furnace bridge. A barrier of fire bricks or an iron-plate chamber filled with water, thrown across the furnace at the extreme end of the fire bars to prevent fuel from being carried into the flues and to quicken the draft by contracting the section of the current of hot gas. (Century)

Furnace cadmium, or cadmia. The zinc-cadmium oxide which accumulates in the chimneys of furnaces smelting zinciferous ores.

Furnace charger. A weighing apparatus for feeding into a furnace mouth the proper proportions of ore, fuel, etc. (Standard)

Furnace holding-the-iron. A condition of the furnace by reason of which it gives much less than normal amount of iron at casting. although the feeding may have been regular. The tap hole runs iron slowly, and amount of cinder is somewhat scanty. *Compare* Furnace losing-the-iron. (Willcox)

Furnace losing-the-iron. Escape of iron from the hearth of a blast furnace into the foundation beneath, indicated by decreased quantity of iron at casting, and appearance of slag at tapping hole. (Willcox)

Furnaceman. One whose sole occupation is to attend a furnace.

Furnace shaft. An upcast shaft used in mine ventilation where a furnace is employed. (C. and M. M. P.)

Furnace stack. A chimney built over a furnace for increasing the draught. (Harr)

Furnisher. A man who furnishes money or machinery to a party of miners, and so becomes entitled to a share of the profits. (Davies)

Furring brick. Hollow brick for lining or furring the inside of a wall. Usually of common brick size, with surface grooved to take plaster. (Ries)

Furrow. *See* Fault trace.

Furtherance (Newc.). An extra price paid to miners when they also haul the coal. (Raymond)

Fuse. 1. A core of black powder wrapped with hemp or cotton threads or tape, with various waterproofing compounds between each, or on the outside, to provide a uniform burning speed of the powder core for the firing of explosives, either with or without a blasting cap. (Du Pont)
2. Any of various devices, as a tube, casing, cord, or the like filled or impregnated with combustible mat-

ter, or a kind of detonator, by means of which an explosive charge is ignited. **3.** To liquefy by heat; to render fluid. **4.** To unite or blend as if melted together. (Webster) **5.** A safety piece in an electric circuit, that fuses when the current is too strong, called often Safety strip or Safety plug (Standard). *See* Fuse plug, 2.

Fuse auger. An instrument for removing part of the filling of a fuse, to regulate its time of burning, the depth of the bore being indicated by a scale. (Webster)

Fuse gage. An instrument for cutting time fuses to length. (Standard)

Fuse lighter. A device for facilitating the ignition of the powder core of a fuse. One form is in the shape of a carpet tack covered with a powder composition; another form is in the shape of a cord, which when ignited burns and maintains a "coal of fire" in contact with the exposed powder in the fuse. (Du Pont)

Fuse lock. A friction lock by which a miner may fire the free end of a blasting fuse by a lanyard. (Standard)

Fuse plug. 1. A plug fitted to the fuse hole of a shell to hold the fuse. **2.** A fusible plug that screws into a receptacle, used as a fuse in electrical wiring. (Webster) **3.** A plug of fusible metal inserted in a steam boiler so as to prevent any danger that might arise from overheating due to low water. (Standard)

Fusibility scale. A list of minerals arranged in the order of their fusibility, as follows: 1. Stibnite; 2. Natrolite; 3. Almandite garnet; 4. Actinolite; 5. Orthoclase; 6. Bronzite. (Dana)

Fusible. Capable of being melted or liquefied. (Webster)

Fusible metal. Any alloy, usually one containing bismuth, which melts at a comparatively low temperature. (Standard)

Fusible quartz (Eng.). A term occasionally applied by the older mineralogists to obsidian. (Page)

Fusion. 1. Act or operation of melting or rendering liquid by heat. **2.** State of being melted or dissolved by heat. **3.** Union or blending of things as if melted together. (Webster)

Fuze. Pronounced as though spelled "fuzee." Originally the device used for exploding the charge in a projectile and later used as a designation for an electric blasting cap. Now known as an electric blasting cap (Du Pont). A variation of Fuse.

Fuzze (Eng.). Straws, reeds, or hollow vegetal substances filled with powder (Bainbridge). *See also* Fuse, 1 and 2.

G.

Gab. A hook; specifically, in steam engines, the hook on an eccentric-rod, catching on the rock-shaft pin, in a valve motion. (Standard)

Gabarro (Mex.). Ore in large pieces, from egg size up. (Dwight)

Gabbie (Scot.). A hook on the end of a chain or rope; a coupling. (Barrowman)

Gabbro. A finely to coarsely crystalline igneous rock composed mainly of lime-soda feldspar (labradorite or anorthite), pyroxene, and frequently olivine. Magnetite or ilmenite, or both, and apatite are accessory minerals. It is generally dark colored. Gabbros composed largely or wholly of feldspar are called anorthosites, and those containing orthorhombic pyroxene are often called norites. (U. S. Geol. Surv.) A full review of the meaning and history of gabbro, by W. S. Bayley, will be found in *Jour. of Geology*, August, 1893, p. 435.

Gabronite. A bluish-gray variety of altered wernerite. (Standard)

Gabian. A variety of petroleum obtained at Gabian, department of Herault, France. (Standard)

Gabion. A bottomless wicker cylinder or basket, from 20 to 70 inches in diameter and from 33 to 72 inches high; used in engineering, when filled with stones, to form the foundation of a jetty. (Standard)

Gablack (Derb.). *See* Gavelock.

Gable-rake tile. The full-flanged tile used at the verge of open gables. (Ries)

Gab-lever. A device for disengaging the gab, on the eccentric rod of a steam engine, from the rockshaft. (Standard)

Gad. 1. A steel wedge. **2.** A small iron punch with a wooden handle used to break up ore. (Raymond) **3.** A metal spike. **4.** A chisel or

pointed or wedge-shaped bar of iron or steel about 6 inches long for breaking or loosening ore. **5.** A bar, billet or ingot of metal. **6.** To break or loosen with a gad, as rock. (Webster)
7. A percussion drill; a jumper. (Standard)

Gadder. A device for supporting a machine drill and permitting a number of parallel holes being driven from one mounting. Distinctly a quarry device. (Gillette, p. 97.) Called also Gadding car, Gadding machine. (Standard)

Gadding machine. *See* Gadder.

Gadolinite. A mineral whose formula is $Be_2Fe(YO)_2(SiO_4)_2$. Crystals often prismatic, rough and coarse; fracture conchoidal or splintery. Brittle. Luster vitreous to greasy. Color black, greenish black, also brown (Dana). A complex silicate of glucinum, iron, and the yttrium and cerium rare-earth metals. Occurs in pegmatites. (U. S. Geol. Surv.)

Gadolinium. A metallic element of the rare earth group. Symbol Gd; atomic weight, 157.3. (Webster)

Gad steel. Flemish steel; so called because wrought in gads or wedges. (Standard)

Gae (Scot.). A fault, slip, or dike. *See also* Gaw, 1. (Barrowman)

Gaffer (Scot.). A foreman. (Barrowman)

Gag. 1. (Eng.). An obstruction in the valve of a pump which prevents it from working. (G. C. Greenwell)
2. A fuller or set hammer, used to straighten railways rails. (Webster)
3. (Derb.). Any piece of timber used temporarily to reinforce other timber until proper timbering can be done. (Hooson)
4. (Eng.). Chips of wood in a shaft bottom, or sump. (Gresley)

Gage; Gauge. An instrument for measuring, indicating, or regulating the capacity, quantity, dimensions, power, amount, proportions, etc., of anything; hence, a standard of comparison. (Standard)

Gage cock. A small cock in a boiler at the water line, to determine the water level. (Nat. Tube Co.)

Gage door. A wooden door fixed in an airway for regulating the supply of ventilation necessary for a certain district or number of men. Also called Regulator. (Steel)

Gage glass. A strong vertical or nearly vertical glass tube connected at its ends with the inside of a steam boiler, showing the water level. (Standard)

Gage-pressure. The pressure shown by an ordinary steam-gage. It is the absoltue pressure less that of the atmosphere. (Ihlseng)

Gage ring (Scot.). A standard ring for measuring buckets of coal or ore. (Barrowman)

Gagger. A piece of iron used in a mold to keep the sand or core in place. (Webster)

Gaging (So. Staff.). A small embankment of slack or rubbish, at the entrance to a heading, to fence it off. (Gresley)

Gahnite. A zinc-bearing spinel, $ZnAl_2O_4$. (Dana)

Gailletins (Belg.). Round coal. (Gresley)

Gain. 1. (Mid.) A transverse channel or cutting made in the sides of a roadway underground for the insertion of a dam or permanent stopping. (Gresley)
2. A notch, mortise, or groove in a timber to receive and support the end of a girder. **3.** A cross cut in coal mining. (Webster)

Gain gear (Scot.). The movable machinery of a mill; going gear. (Standard)

Gaiola (Port.). A hoisting cage. (Halse)

Gaist (Scot.). *See* Ghaist; Ghost-coal.

Gait. 1. (Eng.) A journey or trip. (Bainbridge)
2. Two buckets of water carried by a yoke on the shoulders. (Webster)

Gaite (Eng.). Variation of Gate, a road. (Webster)

Gal. (Corn). A hard rusty gossan. (Power)

Galaclite. A variety of white natrolite occurring in Scotland in colorless acicular crystals. (Century)

Gale. 1. (Forest of Dean) A specified tract of mineral property granted by the Crown to a colliery proprietor or company for working the mines. (Gresley)
2. The Royalty paid by a free miner for a plot of land with the right to dig for coal, iron, or stone. **3.** The license for the plot of land. (Webster)

Galeage (Eng.). Royalty from mineral land. (Bainbridge)

Galee. A coal miner having (or owning) a gale in the forest of Dean, England. (Standard)

Galemador. 1. (Mex.) A silver-smelting furnace. 2. (Peru) A small furnace for roasting silver ores. (Dwight)

Galemar (Mex.). To reduce ore in a Mexican furnace. (Dwight)

Galeme (Mex.). 1. A cupelling furnace with an absorbent hearth. 2. A reverberatory furnace. (Halse)

Galena; Galenite. Lead sulphide, PbS. Contains 86.6 per cent lead (U. S. Geol. Surv.). The commonest lead mineral. When freshly broken it has a bright silvery appearance, from which it has been called lead-glance.

Galena limestone. A Silurian formation in Illinois and adjoining states. Named from Galena, Illinois. (Webster)

Galenite. *See* Galena, for which it is a synonym.

Galera (Mex.). 1. A long shed on each side of the *patio*. 2. A storeroom for ordinary ore. 3. A grinding mill, or mill house. 4. An irregular ore deposit. 5. A furnace for distilling sulphur. 6. A row of reverberatory furnaces. (Halse)

Galería. 1. (Sp.) A gallery, level. 2. At Bilboa, Spain, a variety of hematite. (Halse)

Galerón (Sp.). A large irregular ore deposit. (Halse)

Galiage. Royalty (Raymond). A variation of Galeage.

Gallatin. The heavy oil of coal tar used in the Bethell process for the preservation of timber. Called also Dead oil. (Standard)

Gallein. A coal tar color (purple and violet) used in dyeing. (Century)

Gallery. In mining, a level or drift. (Raymond)

Gallery-furnace. A retort-furnace used in the distillation of mercury. (Raymond)

Gallery of efflux (Eng.). A drainage tunnel or adit. (Ure)

Gallery work. Pottery, especially of a coarse kind. (Standard)

Galliard (Eng.). A hard flinty rock used for road metal. Called also Calliard. (Standard)

Gallium. A rare metallic element, found combined in certain zinc ores. It is white, hard, and malleable, resembling aluminum and remarkable for its low melting point, 86° F., 30° C. Symbol, Ga; atomic weight, 69.9. (Webster)

Gall of glass. A neutral salt skimmed off the surface of melted crown glass. Also called Sandiver. (Ure)

Gallon. The standard gallon of the United States contains 231 cubic inches, or 8.3389 pounds avoirdupois of distilled water at its maximum density and with a barometer of 30 inches. The English imperial gallon contains almost exactly 1.2 U. S. gallons. (Webster)

Gallows (No. of Eng.). A frame consisting of two uprights and a cross-piece for supporting a mine roof. (Standard)

Gallows frame (Eng.). The frame supporting a pulley, over which the hoisting rope passes to the engine (Ihlseng). *See also* Head frame.

Galt; Gault; Golt (Eng.). *See* Folkstone marl.

Galvanism. Current electricity, especially that arising from chemical action, as distinguished from that generated by heat or induction: a term no longer in scientific use. (Standard)

Galvanize. To coat with zinc. (Raymond)

Galvanized rope. Rope made of wires that have been galvanized or coated with zinc to protect them from corrosion. (C. M. P.)

Galvanized sheets. Iron coated with zinc; the name is derived from the process used in their manufacture, being formerly an electric method. (Skinner)

Galvanizing. The process by which the surface of iron and steel is covered with a layer of zinc. (Nat. Tube Co.)

Galvanometer. An instrument for determining the presence of an electric current, measuring its intensity and direction. (Webster)

Galvanoscope. An instrument for detecting an electric current and showing its direction, differing from a galvanometer in being only qualitative. (Standard)

Galvano-thermometer. An instrument for measuring the heat generated by an electric current, or for measuring the current by the heat it generates. (Standard)

Gambusino (Sp.). **1.** A prospector, or searcher of gold. A synonym for Cateador. **2.** A tributer. (Halse)

Gamella (Braz.). A wooden bowl, about two feet wide at the mouth, and five or six inches deep, used for washing gold out of the auriferous material collected in sluices and in river sand. (Lock)

Gamma rays. Very penetrating rays not appreciably detected by a magnetic or electric field, emitted by radium and other radioactive substances. (Webster)

Gancho (Mex.). Hook of any kind. Dog used for extracting tapping bars from furnace. (Dwight)

Gang. **1.** (Mid.) To go; to move along. **2.** A train or set of mine cars or trams. (Gresley)
3. A mine. **4.** A set of miners. (Raymond)
5. Gangue. (Standard)

Ganga (Sp.). Gangue or matrix. (Halse)

Gang-art (Eng.). The side of a mine. (Bainbridge)

Gang car. A car which may be loaded with a block of stone and placed beneath the blades of a gang saw. It is a modern substitute for the stationary saw bed. (Bowles)

Gang drill. A set of drills in the same machine operated together. (Standard)

Ganger. **1.** (Mid.) One who is employed at conveying minerals along the gangways in or about a mine, which employment is known as ganging. (Gresley)
2. A foreman over a gang of workmen. (Webster)

Ganggesteine. German for dike rocks. (Kemp)

Gang-rider (Eng.). A lad who rides with or upon the trams of an underground engine plane, to give signals when necessary, and to operate any levers, clevises, couplings, etc. (Gresley). A Trip rider.

Gangsman. *See* Ganger.

Gasman. *See* Fireman; *also* Fire boss.

Gangue. The non-metalliferous or non-valuable metalliferous minerals in the ore; veinstone or lode-filling (Rickard). The mineral associated with the ore in a vein. (Raymond)

Gangway. **1.** The main haulage road or level (Gresley). Frequently called Entry.
2. (Newc.) A wooden bridge. (Raymond)
3. A passageway or avenue into or out of any enclosed place, as in a mine. (Sangamon Coal Min. Co. v. Wiggerhaus, 122, Illinois, p. 283)

Ganil (Eng.). A sort of brittle limestone. (Standard)

Ganister. **1.** A highly refractory siliceous sedimentary rock used for furnace linings. (U. S. Geol. Surv.)
2. A mixture of ground quartz and fire clay, used in lining Bessemer converters (Raymond)
3. A local name for a fine close-grained siliceous clay that occurs under certain coal beds in Derbyshire, Yorkshire, and North of England. (Power)

Ganister beds. Coal-bearing beds of the lower coal measures of England (Standard). *Compare* Ganister, 3.

Gank (Derb.). A red or yellow vein filling extending through joints or fissures. Considered as a sign of ore nearby. (Hooson)

Gannen (No. of Eng.). A road (heading) down which coal is conveyed in cars running upon rails (Gresley). An inclined gangway in a coal mine. (Standard)

Gantry; Gauntry; Gauntree. **1.** A frame erected on a gold dredge for supporting different parts of the machinery. (Weatherbe)
2. A bridge or platform carrying a traveling crane or winch and supported by a pair of towers, trestles, or side frames running on parallel tracks. **3.** A structure supporting a number of railroad signals for several tracks. (Webster)

Garabato (Mex.). **1.** Curved iron bar used in copper-smelting. (Dwight)
2. The suspension hook of a mine lamp. (Halse)

Gard (Eng.). Gravelly sand; a variation of Garde.

Garde (Corn.). Tailings, composed of clay and sand, from tin dressing works. (Hunt)

Gardner crusher. A swing-hammer crusher, the hammers being flat U-shaped pieces hung from trunnions between two disks keyed to a shaft. When revolved, centrifugal force throws the hammers out against the feed and a heavy anvil inside the crusher housing. (Liddell)

Garganite. A name suggested by Viola and de Stefani for a dike rock in the Italian province of Foggia, which in the middle, with prevailing alkali-feldspar, contains both augite and emphibole, *i. e.*; is a vogesite; on the edges it contains biotite, hornblende, olivine, and resembles kersantite. (Kemp)

Garimpeiro (Brazil). A gold-seeker; also a smuggler. (Lock)

Garkupfer (Ger.). Refined copper. (Whitney)

Garland. 1. (So. Staff.) A trough or gutter round the inside of a shaft to catch the water running down the sides. (Raymond)
2. (Eng.). A wooden, rectangular frame, strengthened with iron corner-plates, for keeping the coal upon the top of a car. (Gresley)

Garnet. A group of silicate minerals including several species with related chemical structure commonly crystallized in dodecahedrons or trapezohedrons of the isometric (cubic) system. Garnets are not always pure but may contain the molecules of two species giving rise to intermediate types, as the gem rhodolite. Common varieties are: *Almandite*, iron-aluminum garnet (abrasive and gem; precious garnet). *Andradite*, lime-iron garnet. *Essonite*, gem variety of grossularite. *Grossularite*, lime-aluminum garnet. *Pyrope*, magnesia-aluminum garnet; gems—Arizona ruby, Cape ruby, etc. *Rhodolite*, isomorphous mixture of two molecules of pyrope and one molecule of almandite. *Spessartite*, manganese-aluminum garnet; used as a gem, sometimes called Hyacinth (U. S. Geol. Surv.). A vitreous to resinous, transparent to subtranslucent, red brown, yellow, white, apple green, or black, brittle, non-cleavable silicate, crystallizing in the isometric system. (Standard)

Garnet blende. A synonym for Sphalerite, commonly called blende. (Chester)

Garnet rock. A rock composed essentially of garnets. (Kemp)

Garnierite. A hydrous nickel-magnesium silicate; a variety of genthite, $H_2(Ni,Mg)SiO+Aq$. (U. S. Geol. Surv.)

Garrapata (Mex.). A clamp for stretching wires. (Dwight)

Garrote (Mex.). A hoisting brake. *See* Freno. (Halse)

Garrotero (Mex.). Railway brakeman. (Dwight)

Gas. 1. An aëriform fluid, having neither independent shape nor volume, but tending to expand indefinitely. (Webster)
2. In mining, a mixture of atmospheric air with fire damp (Standard). The common name for methane. *See* Fire damp.
3. Gas is considered as a mineral, and while *in situ* is a part of the land. (Westmoreland etc. Gas Co. *v.* De Witt, 130 Pennsylvania State, p. 235)

Gas alarm. An alarm for noting the presence of fire damp or choke damp in a mine. (Standard)

Gas black. A superior kind of lamp black, collected by introducing a cold iron surface into the luminous gas flame. (Webster)

Gas carbon. A compact variety of carbon obtained as an incrustation on the interior of gas retorts, and used for the manufacture of carbon rods or pencils for the electric arc, and for the plates of voltaic batteries. (Webster)

Gas coal. Any coal that yields a large quantity of illuminating gas on distillation (Gresley). It should be free from sulphur and other impurities.

Gas coke. The coke formed in gas retorts, as distinguished from that made in coke ovens. (Webster)

Gas conductor. A pipe for leading combustion gases from the mouth of a blast furnace to a hot-blast stove. (Standard)

Gas detector. A device to show the presence of fire damp, etc., in a mine (Standard). *See also* Safety lamp; Burrell gas detector, Methanometer, and Eudiometer.

Gas drain (Eng.). A heading driven in a mine for the special purpose of carrying off fire damp from any working. (Gresley)

Gas engine. A kind of internal-combustion engine using fixed gas; also, broadly any internal-combustion engine. (Webster)

Gaseous. 1. In the form, or of the nature, of gas; pertaining to gases. 2. Lacking substance or solidity. (Webster)

Gaseous place. A place that is likely to be dangerous from the presence of inflammable gas. (Clark)

Gas field. A tract or district yielding natural gas. (Webster)

Gas firing. The combustion of coal effected by burning in such a way as to produce a combustible gas, which is then burned secondarily in the laboratory of the furnace. (Ingalls, p. 268)

Gas furnace. A furnace using gas for fuel, or one for making gas. (Webster)

Gas gage. An instrument for ascertaining the pressure of gas, generally consisting of a bent graduated tube containing water or mercury, open at one end with the other end screwed into the vessel containing the gas. (Century)

Gas generator. 1. An apparatus for generating gas, as a retort in which hydrocarbons are evolved by heat. 2. A carburetor. 3. A machine for the production of carbonic acid gas, for aërating water. (Webster)

Gash. 1. (Scot.) A break or opening in the strata, usually filled with sand, gravel, or other loose rocks. (Barrowman)

2. Applied to a vein wide above, narrow below, and terminating in depth within the formation it traverses (Raymond). *See also* Gash vein.

Gas-house coal tar. Coal tar produced in gas-house retorts in the manufacture of illuminating gas from bituminous coal. (Bacon)

Gas-house tankage. Material that has been used to remove sulphur compounds from illuminating gas. It contains substances which are poisonous to plants and must be used with great care. It is often rich in nitrogen, containing 5 to 10 per cent. (Amer. Fert. Hand Book, 1917, p. 44)

Gash vein. A mineralized fissure that extends only a short distance vertically. It may be confined to a single stratum of rock, but is a comparatively shallow vein (Ihlseng). *See also* Gash, 2.

Gasket. A thin sheet of composition or metal used in making a joint water, gas, or steam tight. (Nat. Tube Co.)

Gas, natural. *See* Natural gas.

Gasoscope. An apparatus for detecting the presence of dangerous gas escaping into a coal mine or a dwelling house. (Webster)

Gas oil. One of the first products of distillation in the manufacture of lubricating oils. (Mitzàkis)

Gasol. A product condensed from casing-head gas by applying a pressure of 850–900 pounds per square inch at ordinary temperature. It has a specific gravity of 0.5, and one pound of the liquid produces seven cubic feet of gas. (Bacon)

Gasoline. A name applied broadly to the lighter products derived from the distillation of crude petroleum having a specific gravity of 0.629 to 0.6673 (95° to 80° B.). It is volatile, inflammable, and used as a fuel in vapor stoves and engines; also as a solvent for fats and oils.

Gas pipe (Mid.). A short wooden pipe about four inches by four inches inside, having its upper end open to the roof, and the lower end opening into the bratticing so that any gas given off in the roof may be carried away as formed (Gresley). Any pipe for conveying gas.

Gas pore. A gas bubble in a mineral. (Standard)

Gas producer. A furnace in which coal is burned for the manufacture of producer gas. There are two types, namely: 1. The step-grate, natural-draught generator, which is but a development of the ordinary fire box. 2. The shaft furnace, with or without a grate and worked by a natural draft or forced draft. The latter type is identical in many respects with a blast-smelting furnace.

The principal producers are: Boetius, Dawson, Dowson, Duff, Hegeler, Mond, Siemens, Smythe, Swindell, Talbott, Taylor, Wellman, and Wilson. (Ingalls, p. 298)

Gas sand. A sandstone containing natural gas. (Webster)

Gassed. *See* Gassing, 2.

Gas separator. *See* Gas trap.

Gasser. A well that yields gas, especially an oil well producing much gas. (Webster)

Gassing. 1. Act or process of subjecting to the action of gas, as lime to chlorine gas in making bleaching powder. 2. The poisoning of persons exposed to noxious fumes or gases. 3. The bubbling of the acid in a storage battery. (Webster)

Gas spectrum. 1. The spectrum, consisting of bright lines or bands, obtained by dispersing the light from a glowing gas or vapor. 2. An absorption spectrum obtained by passing light through a gas or vapor. (Webster)

Gas spurts. Little heaps observed on the surface of certain geological strata containing organic matter; so called because believed to be due to the escape of gas. (Webster)

Gassy. Characteristic of or impregnated with gas, especially coal gas (Standard). Applied to any mine which generates methane, or any other gas.

Gas tank. *See* Gas trap.

Gas tar. Coal tar obtained as a by-product in the manufacture of illuminating gas. (Webster)

Gas trap. One of many devices for separating and saving the gas from the flow and lead lines of producing oil wells. The mixture of oil and gas is allowed to flow through a chamber large enough to reduce the velocity of the mixture to the point at which the oil and gas tend to separate. The gas seeking the top of the chamber, is drawn off free of oil, while the oil is discharged at the bottom. (Tech. Paper No. 209, Bu. Mines) Also called Gas separator; Gas tank.

Gas-water. Water through which coal gas has been passed, and which has absorbed the impurities of the gas. (Century)

Gas well. 1. A deep boring, from which natural gas is discharged. (Raymond)
2. As used in oil and gas leases, a well having such a pressure and volume of gas, and, taking into account its proximity to market, as can be utilized commercially. (Prichard *v.* Freeland Oil Co., 84 S. E. Rept., p. 946)

Gas works. A manufactory of gas, with all of its machinery and appurtenances; a gas plant. (Webster)

Gas zone. A formation which contains capillary or supercapillary voids, or both, that are full of natural gas under pressure considerably exceeding the atmospheric pressure. (Meinzer)

Gatch. Plaster as used in Persian architecture. (Webster)

Gatchers (Corn.). The final sludge or leavings from a tin-ore concentration plant. (Davies)

Gate. 1. (Eng.) Gateway, or gate road. A road or way underground for air, water, or general passage; a gangway. 2. The aperture in a founder's mold, through which the molten iron enters. (Raymond)
3. The closing piece in a stop valve.
4. A valve controlling the admission of water to a water wheel or to a conduit. (Standard)

Gate end. The inby end of a gate. *See* Gate. 1. (Gresley)

Gate-end plate (Mid.). A large sheet-iron plate about four feet six inches square and one-half inch thick, upon which trams (mine cars) are turned round upon coming from the working face to be taken along the gate or roadway (Gresley). A kind of turn-table; a turn sheet.

Gate road (Eng.). A road connecting a stall with a main road (Standard). *See* Gate, 1.

Gates canvas table. A large form of inclined canvas table in which the pulp is first classified, then distributed along the upper edge of the table. The concentrates are caught in the warp of the canvas and after this is full, treatment must be stopped while the concentrates are swept or sluiced off. (Liddell)

Gate shutter. A paddle-like implement used to shut off the flow of metal from a mold, and to divert it to other molds. (Standard)

Gate valve. A valve with a sliding gate; stop valve (Standard). *See also* Gate, 3.

Gateway (Mid.). *See* Gate, 1.

Gather. 1. (Derb.) To drive a heading through disturbed or faulty ground in such a way as to meet the seam of coal, at a convenient level or point on the opposite side. *See also* Eat out. (Gresley)
2. To collect (molten glass) from a pot on the end of an iron tube. 3. To collect the loaded mine cars from the rooms or chambers in a train or trip on a main haulage road. (Standard)

Gathering coal (Scot.). *See* Gathering peat.

Gathering iron. The iron used in taking viscid glass from the melting pot. (Standard)

Gathering motor. A light weight type of electric locomotive used to haul loaded cars from the working places to the main haulage road, and to replace them with empties.

Gathering mule. The mule used to collect the loaded cars from the separate working places, and to return empties. (Steel)

Gathering peat (Scot.). A peat used to maintain a fire all night, hot embers being gathered about it. (Standard)

Gathering rod. *See* Gathering iron.

Gathering zone. A term suggested by J. W. Finch for the space above the ground-water level. *See also* Zone of discharge and Static zone. (Lindgren, p. 31)

Gato (Mex.). Jackscrew; railbender. (Dwight)

Gatton (Scot.). *See* Gauton.

Gauge. *See* Gage.

Gauge-door. *See* Gage-door.

Gault. 1. (Eng.). *See* Folkstone marl.
2. To cover with clay obtained from the subsoil. (Webster)

Gauntlet. A narrowing of two single railway tracks almost into the space of one, as on a bridge or in a tunnel, without breaking the continuity of either track by a switch, the two tracks overlapping each other. (Standard)

Gauntree; Ganntry. *See* Gantry.

Gauteite. A name derived from the Gaute Valley, central Bohemia, and given by J. E. Hibsch to a leucocratic dike rock of porphyritic texture and trachytic habit. The phenocrysts are hornblende, augite, and abundant lime-soda feldspar. The groundmass is about 80 per cent feldspar rods, with the remainder, magnetite grains, small hornblendes, augites, biotites, and a little colorless glass. The gauteite is regarded as a complementary dike-rock to neighboring camptonites and is believed to correspond to the deep-seated monzonites. (Kemp)

Gauton (Scot.). A water course cut in the floor of a mine or working. (Barrowman)

Gauze lamp (Scot.). A (so-called) safety lamp, formerly used in the Scotch coal mines. It is a kind of Davy lamp, with a gauze top about three inches in diameter, and has no brass frame to strengthen it and no glass. (Gresley)

Gavel. A mason's setting-maul. (Standard)

Gavelock (Eng.). An iron poker or lever; a crowbar (Bainbridge). Also spelled Gablack.

Gavelor; Gaveler (Derb.). An officer who gives the miner possession of the mine, and who also collects the taxes. (Mander)

Gavia (Spain). A primitive method of carrying ore in baskets on men's shoulders up inclined shafts in which steps were cut. (Halse)

Gaw. 1. (Scot.) A narrow vein of igneous rock intersecting the strata. (Barrowman)
2. A drain or trench. (Webster)

Gawl (Lanc.). An unevenness in a coal wall. (Gresley)

Gayeterie (Belg.). Second quality coal remaining after the large pieces have been removed. *See* Gayette.

Gayette (Belg.). Large picked coal. A variation of French *Gaillette.*

Gayley process. The process of removing moisture from the blast of a blast-furnace by reducing the temperature so that the moisture will be deposited as snow or ice. The use of the dehydrated blast effects great fuel economy, and promotes regularity in iron-smelting operations. (Webster)

Gay-Lussac's tower. In sulphuric-acid making, a tower filled with pieces of coke over which concentrated sulphuric acid trickles down and, meeting the gas issuing from the lead chambers, absorbs its nitrous anhydride, which otherwise would be lost (Standard). *Compare* Glover's tower.

Gaylussite. A hydrous carbonate of sodium and calcium mineral, $CaCo_3.Na_2Co_3.5H_2O$. (Dana)

Gazogene. *See* Gasogen.

Geanticline. A great upward flexure of the earth's crust; opposed to Geosyncline. (Webster)

Gears; Pair of gears. 1. Two props and a plank, the plank being supported by the props at either end. 2. The teeth of a gear wheel or pinion. (C. and M. M. P.) 3. (No. of Eng.) *See* Double timber. Also staging and rails erected at quays over coal chutes. (Gresley)

Geat. The hole in a mold through which the metal is poured in casting. *See* Gate, 2. (Standard)

Gedanite. A resin resembling amber, but not containing succinic acid and less rich in oxygen; it is found on the shores of the Baltic. *See also* Succinite. (Bacon)

Gee. 1. To cause (a draft animal) to turn to the right. 2. To turn to the right, away from the driver: opposed to Haw; in the imperative, addressed to oxen, mules, or horses as a command. (Standard)

Geest. 1. A name proposed by J. A. DeLuc in 1816 for "the immediate products of rock decay *in situ*." It is a provincial word for earth in Holland and northern Germany. *Compare* Laterite, Saprolite. (Kemp) 2. High, gravelly land; gravel or drift. (Standard)

Gefärht (Ger.). The course or direction of a lode. (Davies)

Geg; Gag (Scot.). A piece of stone or other obstruction preventing the proper closing of a pump valve. The valve is said to be gegged when so obstructed. (Barrowman)

Geisothermal. Same as Isogeothermal (Standard). *See* Isogeothermal lines.

Geissler's tube. A sealed glass tube containing some highly rarified gas and having electrodes at either end which can be connected with an induction coil. When an electric discharge is passed through it the gas becomes luminous. (Standard)

Gel. A form of matter in a colloidal state that does not dissolve but nevertheless remains suspended in a solvent from which it fails to precipitate without the intervention of heat or of an electrolyte. (Rickard)

Gelatin dynamite. An explosive, the composition of which varies between wide limits, depending upon its use. A typical composition is: 62.5 per cent nitroglycerin; 2.5 collodion cotton; 25.5 sodium nitrate; 8.7 meal, and 0.8 soda (Brunswig, p. 300). It is a plastic, water-proof high explosive, of high density, used principally for close-work and where it is exposed to water. (Du Pont)

Gelatinization. Solubility with the formation of jelly-like silica. (A. F. Rogers)

Gelation. Solidification, especially by cooling. (Standard)

Gelignite. The term by which gelatin dynamite is known abroad. (Du Pont)

Gem. 1. A general term for any precious or semi-precious stone, as diamond, ruby, topaz, etc., especially when cut or polished for ornamental purposes. 2. Archæologically, the term is restricted to engraved stone, *e. g.*, intaglios and cameos. 3. In the mineralogical sense, one of the orders of minerals used by Mohs, distinguished by their hardness—enough to scratch quartz—transparency, nonmetallic luster, but generally brilliant and beautiful. (Power)

Gemmary. 1. The science of gems. 2. A house or receptacle for gems or jewels; also gems collectively. 3. An engraver of gems. (Standard)

Gem stone. A precious stone; a mineral suitable for cutting as a gem. (Standard)

Generating station. A station in which electric generators are operated by prime movers. (Clark)

Generation. In petrology, all those crystals, of one or several species, that form at the same period of the cooling and solidification of an igneous rock (La Forge). The same species may have one, two, or very rarely three generations.

Generator. 1. A source of electricity, especially one that transforms heat or mechanical work directly into electric energy, as opposed to a voltaic battery. *See* Dynamo. 2. A vessel, chamber or machine in which the generation of a gas is effected, as by chemical action. (Standard)

Generator gas. Producer gas. (Webster).

Geneva ruby. An artificial ruby. (Power)

Genthite. A hydrous nickel-magnesium silicate mineral, theoretically $2NiO.2MgO.3SiO_2.6H_2O$, but the nickel content is variable. (U. S. Geol. Surv.)

Geo. 1. (Iceland) A narrow inlet walled in by steep cliffs. 2. An element in many compound words of Greek origin, meaning the earth. (Century)

Geocerain. *See* Geocerite.

Geocerellite. A white, brittle, alcohol-soluble oxygenated hydrocarbon which melts at 82° C. (Bacon)

Geocerite. A wax-like, white oxygenated hydrocarbon which melts at about 80° C. It is soluble in alcohol and is unacted upon by a hot potassium hydroxide. Geocerite occurs in the brown coal of Gesterwitz. *See* Geomyricite. (Bacon)

Geocronic. Of or pertaining to geological time (Standard). Now obsolete.

Geochrony. Geologic chronology; the system of time divisions used in geology (Webster). Now obsolete.

Geocronite. An alchemist's name for lead. A lead gray sulphide mineral of antimony and lead, $5PbS.S6_2S_3$. (Webster)

Geode. 1. A hollow nodule or concretion, the cavity of which is lined with crystals. (U. S. Geol. Surv.) 2. The cavity of such a nodule. (Webster)
3. (Leic.) Large nodules of ironstone, hollow in the center. (Gresley)

Geodesy. The science and art of measuring portions of the earth's surface by triangulation and astronomical observation; the determination of the magnitude and figure of the earth: distinguished from surveying, which is concerned only with limited tracts, as farms or counties. (Standard)

Geodetics. *See* Geodesy.

Geogeny. The study of the genesis or formation of the earth (Standard). An obsolete term.

Geognosy. That part of geology which treats of the materials of the earth and its general interior and exterior constitution; sometimes nearly synonymous with geology. (Webster)

Geography. The science that treats of the surface of the earth, including its form and development, the phenomena that take place thereon, and the plants, animals, and peoples that inhabit it, considered in relation to the earth's surface; also a book or treatise on the above subject. (La Forge)

Geologian. An old term for Geologist.

Geological formations. Groups of rocks of similar character and age. (Lawver)

Geological horizon. Rocks of one geological age. (Weed)

Geologic high. Sometimes used in oil fields to indicate a later geological formation regardless of elevation; opposed to Geologic low, which refers to earlier formations. *Compare* Topographic high.

Geologic low. *See* Geologic high.

Geologist. One versed in geology, or engaged in geological study or investigation. (Standard)

Geology. The science which treats of the history of the earth and its life, especially as recorded in the rocks. Three principal branches or phases are usually distinguished: 1. *Structural*, or *geotectonic* geology, treating of the form, arrangement, and internal structure of the rocks. 2. *Dynamic geology*, dealing with the causes and processes of geological change. 3. *Historical geology*, which, aided by other branches, aims to give a chronological account of the events in the earth's history. (Webster)

Other subdivisions are: *Economic geology*, that branch of geology which deals with the applications of the science in industrial relations and operations. *Legal geology*, the application in litigation of the facts and principles of geology, particularly its subdivisions, mineralogy, economic geology, and mining geology. *Mining geology*, a subdivision of economic geology concerned with the application of geologic facts and principles to mining. *Stratigraphic geology*, a study of the succession of the beds of rock laid down during the progress of geologic ages. (Shamel, p. 11)

Geomorphic. Of, or pertaining to, the figure of the earth or the form of its surface; resembling the earth. (Webster)

Geomorphogeny. That part of geomorphology which treats of the origin and development of the earth's surface features. (La Forge)

Principal divisions of geologic time.

[U. S. Geological Survey.]

Era.	Period.	Epoch.	Characteristic life.	Duration, according to various estimates.
				Millions of years.
Cenozoic (recent life).	Quaternary.	Recent. Pleistocene (Great Ice Age).	"Age of man." Animals and plants of modern types.	1 to 5.
	Tertiary.	Pliocene. Miocene. Oligocene. Eocene.	"Age of mammals." Possible first appearance of man. Rise and development of highest orders of plants.	
Mesozoic (intermediate life).	Cretaceous.	(*b*)	"Age of reptiles." Rise and culmination of huge land reptiles (dinosaurs), of shellfish with complexly partitioned coiled shells (ammonites), and of great flying reptiles. First appearance (in Jurassic) of birds and mammals; of cycads, an order of palmlike plants (in Triassic); and of angiospermous plants, among which are palms and hardwood trees (in Cretaceous).	4 to 10.
	Jurassic.	(*b*)		
	Triassic.	(*b*)		
Paleozoic (old life).	Carboniferous.	Permian.	"Age of amphibians." Dominance of club mosses (lycopods) and plants of horsetail and fern types. Primitive flowering plants and earliest cone-bearing trees. Beginnings of backboned land animals (land vertebrates). Insects. Animals with nautilus-like coiled shells (ammonites) and sharks abundant.	17 to 25.
		Pennsylvanian.		
		Mississippian.		
	Devonian.	(*b*)	"Age of fishes." Shellfish (mollusks) also abundant. Rise of amphibians and land plants.	
	Silurian.	(*b*)	Shell-forming sea animals dominant, especially those related to the nautilus (cephalopods). Rise and culmination of the marine animals sometimes known as sea lilies (crinoids) and of giant scorpion-like crustaceans (eurypterids). Rise of fishes and of reef-building corals.	
	Ordovician.	(*b*)	Shell-forming sea animals, especially cephalopods and mollusk-like brachiopods, abundant. Culmination of the buglike marine crustaceans known as trilobites. First trace of insect life.	
	Cambrian.	(*b*)	Trilobites and brachiopods most characteristic animals. Seaweeds (algæ) abundant. No trace of land animals found.	
Proterozoic (primordial life).	Algonkian.	(*b*)	First life that has left distinct record. Crustaceans, brachiopods, and seaweeds.	50+
	Archean.	Crystalline rocks.	Fossils found.	

Geomorphology. 1. That branch of physical geography which deals with the form of the earth, the general configuration of its surface, the distribution of the land, water, etc. 2. The investigation of the history of geolgic changes through the interpretation of topographic forms. (Webster)

Geomyricin. *See* Geomyricite.

Geomyricite. A wax-like, white mineral, melting at about 80° C., and soluble in hot absolute alcohol and ether; its composition ($C_{34}H_{68}O_2$) is near that of certain vegetal waxes. (Bacon)

Geonomy. The science of the physical laws of the earth. It includes geology and physical geography. (Webster)

Geophone. A device to determine beneath the surface the exact location of sounds transmitted through the ground. It is a recent invention and may prove useful in finding men imprisoned by mine disasters.

Geophysical. Relating to the physics of the earth. (Century)

Geordie. 1. (Scot.) A coal worker. 2. A miner's name for a safety lamp invented by George Stephenson. (Webster)

Geordie turn-out (Aust.). A turn-out (switch), from a heading to a bord, made of iron bars of square cross section instead of ordinary T-rails, so that the same turn-outs can be used to the right or left by simply reversing them. (Power)

Geostatic. Capable of sustaining the pressure of superincumbent earth. (Century)

Geosyncline. A great downward flexure of the earth's crust; opposed to Geanticline. (Webster)

Geotectonic. Pertaining to the form, arrangement, and structure of the rock masses composing the earth's crust. Structural. (Webster)

Geothermic; Geothermal. Of, or pertaining to, the heat of the earth's interior. (Webster)

Geothermic degree. The average depth within the earth's crust corresponding to an increase of one degree in temperature. (Webster)

Gerente (Mex.). Business manager. (Dwight)

Gerhardtite. Basic cupric nitrate. $Cu(NO_3)_2.3Cu(OH)_2$. In pyramidal orthorhombic crystals. Color, emerald green. From the copper mines at Jerome, Ariz. (Dana)

German. A straw filled with gunpowder to act as a fuse in blasting operations. (Gresley)

German cupellation. The characteristics of this method are: a large reverberatory furnace with a fixed bed and a movable roof, that the bullion to be cupelled is all charged at once and that the silver is not refined in the same furnace where the cupellation is carried on. (Hofman, p. 508)

Germanium. A grayish white rare metallic element, resembling silicon and carbon in some respects, and tin in others. Symbol, Ge; atomic weight, 72.5; specific gravity 5.46. (Webster)

German process. In copper smelting, the process of reduction in a shaft-furnace, after roasting, if necessary (Raymond). *See* German reduction process. Also called Swedish process.

German reduction process. This process consists in: (a) Roasting the ore; (b) Melting and obtaining a matte with 30 to 40 per cent of copper called coarse metal; (c) Roasting the coarse metal; (d) Melting and obtaining a matte with 60 to 70 per cent copper called fine metal; (e) Roasting the fine metal; and (f) Melting and obtaining black copper. (Goesel)

German silver. A white alloy of nickel, copper, and zinc. (Raymond)

German steel. A metal made from charcoal iron obtained from bog iron or from sparry carbonate of iron. (Standard)

Gersdorffite. A mineral, sulpharsenide of nickel, NiAsS or $NiS_2.NiAs_2$. Iron and sometimes cobalt replace more or less of the nickel. Is usually massive and has a silver-white to steel-gray color. (Dana)

Gerstenhofer furnace. A shaft furnace filled with terraces or shelves, through which crushed ore is caused to fall, for roasting. (Raymond)

Get. 1. (Eng.) To work away or excavate by mining either under or above ground. 2. The produce or output, in tons, of a colliery or mine during a certain period. (Gresley)

Get a clean-up (Ark.). To have an opportunity to load out all the coal a miner has loosened. (Steel)

Getter (Eng.). A miner who gets out coal or ore. (Standard)

Getting (Eng.). Cutting, mining, and loading coal, etc., in a mine. (Gresley)

Getting-in-the-top (Eng.). Cutting out and timbering the crown of the excavation for the tunnel. (Simms)

Getting rock (So. Staff.). Clay ironstone in the roof of a coal seam, which is worked in conjunction with the coal. (Gresley)

Geyser. A spring from which hot water and steam, and in some cases mud, are intermittently, periodically, and explosively thrown vertically, like a fountain, to a considerable height. (La Forge)

Geyser basin. An area in which geysers are grouped. (Standard)

Geyserite. A hydrated form of silica, a variety of opal, deposited around some hot springs or geysers. (Dana)

Ghaist (Scot.). The white ash or cinder of shale of shaly coal. (Barrowman)

Ghat; Ghaut (India). Literally, a pass often difficult and narrow, through a mountain ridge, or from the lower plains to the higher plateaux (Oldham). A range or chain of mountains or hills, or the scarped wall of a table-land. (Standard)

Ghost. 1. (So. Staff.) A blue cap on a candle or lamp. (Gresley)
2. (Scot.) *See* Veal.

Ghost-coal (Scot.). A coal which yields a fixed white incandescent light, as of a specter, in a burning fire (Standard). Called also Gaist.

Ghurr; Thurr; or "The mother of metals." A term used by alchemists for the mineral substance which in time is supposed *to ripen*, and become real ore. Glauber the alchemist (from whom we get "Glauber's salts," sulphate of soda) tells us "that in Germany the miners know when the ores are not grown to perfection, and usually say they are come too soon; and shut up the mine again for some years till it is ripened and grown to perfection." (Hunt)

Giallo antico marble. A yellow marble used by the ancient Greeks and Romans; hence the name *Giallo antico* or antique yellow. The source is Algeria. (Merrill)

Giant. A large nozzle used in hydraulic mining. (Webster)

Giant granite. *See* Pegmatite.

Giant kettle. One of the numerous very large potholes (moulins) on the coast of Norway, probably formed by englacial waterfalls. (Standard)

Giant powder. A form of dynamite consisting of a mixture of nitroglycerin and kieselguhr. (Webster)

Giant's Causeway. A sheet of columnar basalt covering large areas where the structure is finely displayed in the close-fitting hexagonal pillars distinctly marked, and varying in diameter from 15 to 20 inches, with a height of 20 feet in some places. It forms a prominent cliff on the north coast of Ireland.

Gib. 1. (Scot.) A sprag; a prop put in the holing of a seam while being under-cut. (Barrowman)
2. A piece of metal often used in the same hole with a wedge-shaped key for holding pieces together. (C. and M. M. P.)

Gib and key (Scot.). A two-part tightening wedge, one part, the gib, being fixed while the other part, the key or cotter, is adjustable lengthwise. (Standard)

Gibber. In geology, a facetted pebble or glyptolith; a dreikanter. (La Forge)

Gibbsite. A monoclinic hydroxide of aluminum mineral, $Al_2O_3 3H_2O$. (Dana)

Gieseckite-porphyry. A nephelite porphyry from Greenland, whose nephelite phenocrysts are altered to the aggregate of muscovite scales, which was called gieseckite under the impression that it was a new mineral. Liebenerite porphyry is the same thing from Predazzo, in the Tyrol. (Kemp)

Gig. 1. (Scot.) A winding engine. (Barrowman)
2. (Eng.) A small sump. *See* Sump, 1. (Bainbridge)
3. (Eng.) A two-storied box or cage for use in a mine shaft; also a kibble. (Webster)

Gig house (Scot.). A winding-engine house. (Barrowman)

Gild. To wash over or overlay thinly with gold; to coat with gold, either in leaf or powder. 2. To overlay with any other substance for the purpose of giving the appearance of gold. (Standard)

Gillie's process. A flotation process based upon the principles of the Potter-Delpeat process but embodying some unique apparatus. The process never had any commercial success. (T. J. Hoover, p. 15)

Gilpin county table. *See* End-bump table.

Gilsonite; Uintaite. 1. A brilliant black, very brittle variety of asphalt having a marked conchoidal fracture and a brown streak. Upon exposure to air readily breaks down into a brown powder. Decrepitates but fuses easily in a candle flame, and is soluble in carbon disulphide (CS_2), alcohol, and turpentine. (U. S. Geol. Surv.)
2. A solid asphaltum found in place, in a vein, lode, or rock. (Webb *v.* American Asphaltum Min. Co., 157 Fed. Rept., p. 205)

Gime (Eng.). A hole washed in an embankment by a rush of water through a leak. (Standard)

Gin. 1. (Eng.) A drum and framework carrying pulleys, by which the ore and waste are raised from a shallow pit (Gresley). A whim. Also called Horse gin. Gin is a contraction of engine.
2. A pump worked by a windlass.
3. A pile-driving machine. (Standard)

Gin beam (So. Staff.). A timber crossbar carrying the pulley wheels over the top of a head frame. (Gresley)

Gin block. A simple form of tackle-block attached to a gin. (Standard)

Ginging (Derb.). The lining of a shaft with masonry. (Raymond)

Gingoni (Derb.). Walling up a shaft, instead of timbering, to keep the loose earth from falling. (Min. Jour.)

Gin horse. A horse working a gin, or mill (Standard). *See* Gin, 1.

Ginney (Nova Scotia). A prop.

Ginny carriage (Eng.). A small strong carriage for materials. (Webster)

Ginny rails (Eng.). Track rails for ginny carriages. (Webster)

Gin pit. A shallow mine, the hoisting from which is done by a gin. (Webster)

Gin pole. Any of the three poles of a hoisting gin. A single pole held in position by guys. (Webster)

Gin race. 1. (Eng.) A wide excavation near the top of an underground inclined plane in which a gin is fixed. (Gresley)
2. The track or path of a horse turning a gin. Also called Gin ring. (Webster)

Gin ring. The circle round which a horse moves in working a gin or horse-whip. (Century)

Gin tackle. A tackle arranged for use with a gin; especially, a combination of a double with a triple pulley block which multiplies by five the power exerted. (Standard)

Gin wheel. The cylinder of a gin or winch. (Standard)

Gipsy winch. A small winch that may be attached to a post, working either by a rotary motion or by the reciprocating action of a handle having a pair of pawls and a ratchet. (Standard)

Giraffe. 1. A cage-like mine car especially adapted for inclines, having the frame higher at one end than at the other. (Standard)
2. A mechanical appliance for receiving and tripping a car of ore, etc., when it arrives at the surface. (Duryee)
3. A multiple-deck skip. (Halse)

Girasol. Opal. Bluish white, translucent, with reddish reflections in a bright light. (Dana)

Girdle. 1. (No. of Eng.) A thin bed of stone exposed in a shaft or bore hole. (Gresley)
2. (Newc.) A thin stratum of coal. (Power)
3. A thin sandstone stratum. 4. The peripheral line of a cut gem, at which it is held by the setting. (Standard)

Girth; Girt. 1. In square-set timbering, a horizontal brace in the direction of the drift. (Raymond)
2. A small girder. (Standard)

Gis (Mex.). Chalk; crayon; pencil. (Dwight)

Gismondite. A mineral, $CaAl_2Si_4O_{12}+4H_2O$. In pyramidal crystals, pseudo-tetragonal. Colorless or white, bluish white, grayish, reddish. (Dana)

Gizzen (Scot.). To shrink from dryness so as to leak; as a pail gizzens; leaky. (Standard)

Gjer's soaking-pit. A cavity lined with refractory material used in metal working to inclose large ingots, in order to preserve them at a high temperature, and thus avoid the necessity of reheating. (Century)

Glacial. In geology, pertaining to, characteristic of, produced or deposited by, or derived from a glacier. (La Forge)

Glacial boundary. The boundary line of the utmost extension of the lower margin of glacier land-ice in any region, often extending beyond the outer terminal moraine. (Standard)

Glacial drift. *See* Drift, 6.

Glacial epoch. The Pleistocene epoch, the earlier of the two epochs comprised in the Quarternary period: characterized by the extensive glaciation of regions now free from ice. (La Forge)

Glacial erosion. The erosion of earth and rocks produced by glacier ice charged with detritus, and assisted by glacial streams (Standard). *See* Glaciation, 1.

Glacialism. The glacier theory. (Standard)

Glacialized. Subjected to the action of ice. (Standard)

Glacial planing and polishing. The leveling and smoothing of rock surfaces by ice erosion. (Standard)

Glacial scoring. The scratching and grooving of a rock surface by glacial erosion. (Century)

Glacial scratches. *See* Glacial striæ.

Glacial striæ. **1.** Usually straight, more or less regular scratches, commonly parallel in sets, on smoothed surfaces of rocks, due to glacial-abrasion; glacial scratches. **2.** Curved, crooked, and intermittent gouges, of irregular depth and width, and rough definition, on certain rock-surfaces, sometimes due to abrasion by icebergs. (Standard)

Glacial terrace. A glacial deposit rearranged in terrace form. (Standard)

Glaciate. To overspread with glacial ice, or to produce the phenomena of rock planation, rock-scoring, drift, etc. (Standard)

Glaciated. Covered by and subjected to the action of a glacier. (La Forge)

Glaciation. **1.** The effect produced upon an area through being covered by a glacier and through the erosion, transportation, and deposition of material by the glacier. (La Forge)
2. The act of or result of freezing, or the state of being frozen. (Standard)

Glacic. Same as glacial. (Standard).

Glacier. A stream or sheet of ice, formed by the compacting and recrystallization of unmelted snow accumulated to a great thickness, flowing down a mountain valley or outward across country in all directions from a center of accumulation (La Forge). When a glacier reaches the sea it often breaks off and forms ice bergs.

Glacier burst. The sudden release of a reservoir of water which has been impounded within or by a glacier. (Century)

Glacière (Fr.). An artificial or natural cavity, in a temperate climate, in which a mass of ice remains unthawed throughout the year; an ice glen; ice cave. (Standard)

Glacier grain. **1.** The granular texture of glacier ice. **2.** One of the grains of ice in a glacier. (Century)

Glacier meal. *See* Rock flour.

Glacier milk. Water issuing from beneath a glacier and exhibiting a characteristic white color due to suspended triturated rock. (Webster)

Glacier mud, or silt. The pulverulent material, produced by glacial erosion, that is washed out from beneath a glacier and deposited at lower levels by glacial streams. (Standard)

Glacier snow. The compacted mountain snow that is in the intermediate stage between ordinary snow and glacier ice. (Standard)

Glacier table. A block of stone left and supported above the surface of a glacier on a column of ice formed by the melting away of the surrounding glacier ice. (Webster)

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Glacier theory. The theory that large elevated portions of the temperate and frigid zones were covered during the early Quaternary, and perhaps during some earlier epochs, by slowly moving ice sheets and glaciers, that tra sported vast masses of drift to lower latitudes, assisted by icebergs drifting along the coast. (Standard) No longer a theory, but accepted as fact.

Glacioaqueous. Pertaining to or resulting from the combined action of ice and water. (Standard)

Glaciofluvial. Of, pertaining to, produced by, or resulting from combined glacier action and river action. (Standard)

Glaciolacustrine. Pertaining to or characterized by glacial and lacustrine conditions. Deposits made in lakes whose borders were affected by glacier ice, or by water flowing directly from glaciers. (Webster)

Glaciology. That branch of geology which treats of glaciers, of the deposits formed by them, and of the results of their action in modifying topography. (La Forge)

Glaciomarine. Of, or relating to processes or deposits which involve the action of glaciers and the sea, or the action of glaciers in the sea. (Century)

Glacure (Fr.). A thin glazing on fine pottery. (Standard)

Glance. A term used to designate various minerals having a splendent luster, as silver glance, lead glance, etc. (Roy. Com.)

Glance coal. A term for Anthracite. (Gresley)

Glance cobalt. Same as Cobaltite. (Standard)

Glance copper. Same as Chalcocite. (Standard)

Glance pitch. A pure quality of asphalt; manjak. (Webster)

Gland. 1. (Scot.) A malleable iron band surrounding a pipe or log and tightened by means of bolts. (Barrowman)
2. The outer portion of a stuffing box, having a tubular projection embracing the rod, extending into the bore of the box, and bearing against the packing. 3. The fixed engaging part of a positive-driven clutch. 4. A bar hooked at both ends for clamping the parts of a molder's flask. (Standard)

Gland bridge (Scot.). A bar or strip of iron to which a gland is sometimes bolted. *See also* Gland, 1. (Barrowman)

Glass. 1. The amorphous result of the quick chill of a fused lava. *See* Obsidian; *also* Volcanic glass. (Kemp)
2. (Eng.) A collier's word for a dial. (Gresley)
3. A compound of silica with at least two metallic oxides, usually those of sodium, potassium, or lead. It is generally transparent or translucent, is brittle and sonorous at ordinary temperatures, and when heated becomes soft and ductile. finally melting. The point of fusion differs with its composition. It breaks with a conchoidal (commonly called vitreous) fracture, and is acted on by hydrofluoric acid, but not by ordinary solvents. (Standard)

Glassen (Local, Eng.). To coat with or as with a glaze. (Standard)

Glass furnace. A furnace for fusing together the materials of which glass is made, or one for remelting glass frit and making it ready for working. (Standard)

Glass gall. A whitish scum cast up from the materials of glass in fusion, and removed by the aid of shovels. (Webster)

Glass inclusion. In crystals of igneous rocks, an inclusion of glass or some lithoid substance. (Standard)

Glass metal. The fused and refined material of which glass is made. (Century)

Glass rock. A pure cryptocrystalline Trenton limestone in northern Illinois and southern Wisconsin. (Ore dep., p. 234)

Glass sand. An extremely pure silica sand useful for making glass and pottery. (Bowles)

Glass seam. A joint plane in a rock that has been re-cemented by deposition of calcite or silica in the crack. (Bowles)

Glass tiff. Calcite. (Power)

Glass wool. A fibrous wool-like material, composed of fine filaments of glass intermingled like mineral wool (Standard). *See* Mineral wool.

Glauberite. A mineral, sodium-calcium sulphate, $Na_2SO_4.CaSO_4$. (U. S. Geol. Surv.)

Glauber salt. *See* Mirabilite.

Glaucodot. Sulpharsenide of cobalt and iron, (Co, Fe)AsS. In orthorhombic crystals. Also massive. Luster metallic. A grayish tin-white mineral. (Dana)

Glaucolite. A variety of wernerite having a blue or green tint. (Standard)

Glauconite; Greensand. Essentially a hydrous silicate of iron and potassium, but the material is usually a mixture and consequently varies much in composition. The potash ranges from 2.2 to 7.9 per cent. *See also* Marl. (U. S. Geol. Surv.)

Glaucophane. One of the monoclinic amphiboles. A silicate of sodium, aluminum, iron, and magnesium. Essentially $NaAl(SiO_3)_2.(FeMg)SiO_3$. (Dana)

Glaucopyrite. A variety of lollingite containing cobalt. (Standard)

Glazed. Containing considerable silica: said of pig iron, which is thus made brittle and difficult to puddle. (Standard)

Glaze kiln. A kiln for firing glazed biscuit ware. (Standard)

Glazier. One who applies glaze to pottery. (Standard)

Glazing barrel. A rotating barrel in which gunpowder is glazed with graphite. (Standard)

Glazy. Vitreous; glassy; dull. Having a glazed appearance as the fractured surface of some kinds of pig iron. (Webster)

Glebe (Gt. Brit.). A tract of land containing mineral (ore). (Standard)

Gleg parting. 1. (Scot.) The easy parting of one stratum from another. (Barrowman)
2. Sharp; smooth or slippery. (Webster)

Glen. A small valley; a secluded hollow among hills. (Standard)

Glessite. A resin occurring, with succinite on the shores of the Baltic; it has a brown color and a specific gravity of 1.015 to 1.027. (Bacon)

Gliding. A change of form by differential movements along definite planes in crystals without fracture. (C. K. Leith, Bull. 239, U. S. Geol. Surv., p. 138)

Gliding planes. Directions parallel to which a slipping of the molecules may take place under the application of mechanical force, as by pressure (Dana). Also called Glide planes.

Glimmer. Mica (Standard). *See* Glist, 1.

Glimmering. As applied to the degree of lustre of minerals, means those which afford an imperfect reflection, and apparently from points over the surface, as flint, chalcedony (Dana). *Compare* Glistening.

Glist. 1. (Corn.) Mica. (Raymond)
2. A gleam; sparkle. (Webster)
3. (Eng.) A dark, shining mineral resembling black tourmaline. (Standard)

Glistening. As applied to the degree of lustre of a mineral means those minerals affording a general reflection from the surface, but no image, as talc, chalcopyrite (Dana). *Compare* Glimmering.

Glister (Va.). To increase the heat of (a brick-kiln) by stirring the fire and supplying fuel. (Standard)

Glit (Scot.). The slime of a river bed. (Standard)

Globe valve. 1. A valve with approximately a spherical chamber. 2. A valve in which a ball is pressed against a seat to close it. (Standard)

Globulite. 1. A very minute droplike body, the simplest kind of a crystallite. (Webster)
2. A tiny, rounded, incipient crystal form visible in some volcanic glasses when they are examined in thin sections under a microscope. (Ransome)

Glockerite. A mineral, $2Fe_2O_3.SO_3.6H_2O$. Massive, sparry, earthy, or stalactitic. Color, brown to ocher-yellow to pitch black; dull green. (Dana)

Glomeroporphyritic. A textural term proposed by Tate for those porphyritic rocks whose feldspar phenocrysts are made up of an aggregate of individuals instead of one large crystal. *Compare* Ocellar. (Kemp)

Gloom. A stove for drying gunpowder; drying oven. (Standard)

Glory hole. 1. A large open pit from which ore is or has been extracted (Weed). *See also* Milling.
2. An opening through which to observe the interior of a furnace. (Standard)

Glory-hole system. A method of mining using a system of haulageways beneath the block of ore, which has had its top surface exposed by the removal of the overburden. Connecting with the haulageways are chutes that extend up to the surface, and are spaced at intervals of 50 ft., or at any other convenient distance. The excavation of the ore begins at the top of the chute, and the broken ore is removed by loading it out from the chutes into cars on the haulage level. The ore block is worked from the top down. The method is similar in principle to underhand stoping (Young). Also called Milling system and Chute system.

Glossary. A collection of notes or explanations of words and passages of a work or author; a partial dictionary of a work, an author, a dialect, art, or science, explaining archaic, technical, or other uncommon words. (Webster) In addition, this glossary contains provincialisms and local terms used by miners, as well as many words originating in other industries but adapted to the mining and mineral industry.

Gloss coal. A variety of brown coal, compact, deep black, with conchoidal fracture well developed, possessing a resinous to glossy and metallic luster. It is the hardest and most compact of the lignites; its specific gravity varies from 1.2 to 1.5. (Bacon)

Glost. In ceramics, lead glaze used in the manufacture of pottery. (Standard)

Glost oven. In ceramics, a glazing-kiln. (Standard)

Glover's tower. In sulphuric-acid works, a tower through which the acid from the Gay-Lussac tower trickles and yields nitrous anhydride to the gases entering the lead-chambers, at the same time cooling them. (Standard)

Glow. The incandescence of a heated substance, or the light from such a substance; white or red heat; as, the *glow* of melted iron; the *glow* of embers. (Standard)

Glucinum. An element occurring only in combination in a few comparatively rare minerals, as beryl, chrysoberyl. A silver-white malleable metal. Symbol, Gl; atomic weight, 9.1. Specific gravity, 1.8 (Webster). Called Beryllium by German chemists.

Gluing rock. A ferruginous clay lying above a coal stratum, and which may be mined at the same time as the coal. (Standard)

Glut. **1.** (Newc.) A piece of wood, used to fill up behind cribbing or tubbing. (Raymond)
2. A wooden wedge. **3.** A small brick or block to fill up a course; also an unburned pressed brick. (Standard)

Glyptic. In mineralogy, exhibiting figures. (Standard)

Glyptography. **1.** The art, process, or operation of engraving on precious stones or the like. **2.** A description of or treatise on gem-engraving; the knowledge or study of engraved gems. (Standard)

Glyptolith. A faceted pebble polished by wind action. (Lahee, p. 44)

G. M. B. (Eng.). "Good merchantable brand," as applied to copper by the Metal Exchange. (Skinner)

Gmelins blue. *See* Ultramarine, 2.

Gneiss. A layered crystalline rock with a more or less well-developed cleavage, but without the fissility of schist. (U. S. Geol. Surv.) The commonest varieties are mica-gneiss, consisting of feldspar, quartz, and mica; and hornblende-gneiss, consisting of feldspar, quartz, and hornblende. (Roy. Com.)

Gneissic; Gneissoid. Having the appearance or character of gneiss. (Ransome)

Gnomonic projection. A projection made on a plane tangent to a sphere. (A. F. Rogers)

Goaf; Gob. **1.** That part of a mine from which the coal has been worked away and the space more or less filled up. **2.** The refuse or waste left in the mine. (Woodson)

Goafing. Same as Goaf, 2.

Goaves. Old workings. (Raymond)

Gob. **1.** The common American term for goaf. **2.** Any pile of loose waste in a mine. **3.** To leave coal and other minerals that are not marketable in the mine. **4.** To stow or pack any useless underground roadway with rubbish. (Steel)
5. To choke, as a furnace gobs up. (Webster)

Gobbet. A block of stone. (Standard)

Gobbin (Leic.). A contraction of gobbing. *See* Goaf, *also* Gob.

Gobbing. *See* Gob, 3, 4 and 5. The term Gobbing-up is also used synonymously.

Gobbing slate. A thick layer of slate between two seams of coal. The lower seam is mined and the upper seam and the slate shot down; the coal loaded out and then the slate gobbed. (Thacker *v.* Shelby Coal Min. Co., 197 S. W. Rept. p. 633)

Gob entry. A wide entry with a heap of refuse or gob along one side. (Steel)

Gob-fire. Fire originating spontaneously from the heat of decomposing gob (Chance). Also called Breeding-fire.

Gob road (Eng.). A gallery or road extended through goaf or gob. (Gresley)

Gob-road system (Eng.). A form of the longwall system of working coal, in which all the main and branch roadways are made and maintained in the goaves. (Century)

Gob room. Space left for stowing gob. (Steel)

Gob stink (Aust.). The odor from the burning coal given off by an underground fire. (Power)

Gob-up (Eng.). *See* Gob, 4 and 5.

Gob wall. A rough wall of flat stones built to prevent the piles of gob from obstructing the passage of air. (Steel)

Go-devil. 1. A scraper with self-adjusting spring blades, inserted in a pipe line and carried forward by the fluid pressure, clearing away accumulations from the walls of the pipe. 2. In the oil country this term is also applied to device for exploding the nitro-glycerin used to shoot an oil well. (Redwood)
3. A rude sledge upon which one end of a log is borne, the other end trailing on the ground; tieboy; also a rough, strong wagon used in the woods and about quarries. (Standard)

Godfrey furnace. A furnace with an annular hearth for roasting sulphide ores. Used in Wales. (Ingalls, p. 118)

Godong (Malay). A warehouse; also called Godown.

Godown. A corruption of the Malay *godong*, meaning a warehouse. (Webster)

Goffan; Goffen (Corn.). A long narrow surface-working (Raymond). *See also* Coffin.

Gog (Eng.). A bog. (Standard)

Gogo (Philippines). A plant whose juice is said to catch fine gold. (Lock)

Going (Scot.). Working, *e. g.*, a going place. A room in course of being worked. (Barrowman)

Going bord (No. of Eng.). A bord (room) down which coal is trammed, or one along which the coal from several working places is conveyed into the main haulage. (Gresley)

Going headway. A headway or bord laid with rails, and used for conveying the coal cars to and from the face. (C. and M. M. P.)

Gold. A metallic element of characteristic yellow color. The most malleable and ductile of all metals and one of the heaviest substances known. Symbol, Au; atomic weight, 197.2. Specific gravity, 19.2 to 10.4.

Gold amalgam. 1. A variety of native gold containing mercury. (Standard)
2. *See* Amalgam, 3.

Gold beater. One who makes gold leaf. (Standard)

Goldbeaters' mold. A pack composed of several hundred goldbeaters' skins, having between them partly beaten gold foil to be hammered out into gold leaf. (Standard)

Goldbeaters' skin. The outer coat of the cæcum of the ox, prepared for the use of the goldbeater. (Standard)

Gold brick. A pretended or real brick or bar of gold, sold by a swindler to his victim, to whom is delivered the spurious brick or some substitute for the genuine one; hence, anything purchased as valuable which proves to be almost or quite valueless. (Webster)

Gold digger. One who digs for or mines gold. This word is almost exclusively used to designate placer miners. Those engaged in mining in solid rock are called quartz miners. (Century)

Gold diggings. A region where gold is found mixed with sand or gravel (Standard). *See* Diggings.

Gold dust. Fine particles of gold, such as are obtained in placer mining. An impure dust is sometimes called commercial dust. (Webster)

Golden gate table. *See* End-bump table.

Golden ocher. 1. A native ocher. 2. A mixture of light-yellow ocher, chrome yellow and whiting. (Standard)

Gold fever. A mania for seeking gold: applied specifically to the excitement caused by the discovery of gold in California in 1848–49. (Standard)

Goldfiedite. A sulphantimonide of copper in which part of the antimony is replaced by arsenic and bismuth and part of the sulphur by tellurium. (U. S. Geol. Surv.)

Gold field. A region where gold is found. (Standard)

Gold-filled. Denoting an extra heavy or thick plate of gold on a base metal, as in watch-making. *Compare* Rolled plate. (Standard)

Gold foil. Gold beaten or rolled very thin. (Webster)

Gold latten. 1. Very thin sheet gold. 2. Any thin sheet brass or other metal gilded. (Standard)

Gold mine. 1. A mine containing or yielding gold. It may be either in solid rock (quartz mine) or in alluvial deposits (placer mine). 2. Any investment yielding or furnishing great profit.

Gold purple. Purple of Cassius. (Webster)

Goldschmidt's process. 1. The thermite process of welding. *See* Thermite. 2. The reduction of a metal by mixing its oxide with powdered aluminum and igniting. (Webster)

Goldsmith's window (Aust.). A slang term for a rich mining claim. (Standard)

Gold solder. A kind of solder containing twelve parts gold, two of silver and four of copper. (Webster)

Goldstone. Aventurine in which the gold spangles are very close and fine, giving it the appearance of a natural jewel. *See* Aventurine. (Webster)

Gold telluride. *See* Sylvanite; Calaverite; Krennerite.

Gold wash. A place where gold is washed: used chiefly in the plural. (Standard)

Gold washer. 1. A sweater of gold coin. 2. One who recovers gold by washing away the dirt from auriferous gravel, in a pan, cradle or the like. Also a mechanical device for this purpose. (Webster)

Gold washing. Act or process of washing auriferous soil for gold; also a place where this is carried on (Webster). *See also* Diggings.

Gold work. 1. Act or art of working gold. 2. A place where gold is mined, washed, or worked. (Webster)

Gole. 1. A sluice or floodgate. 2. A small stream; ditch. 3. A hollow between hills; vale. (Standard)

Golpeador (Mex.). The striker, in hand drilling. (Dwight)

Gompholite. *See* Nagelfluh.

Gondola. 1. (U. S.) A long platform railroad car, either having no sides or very low sides. (Webster)
2. A large flat-bottomed river-boat of light build. (Standard)

Gong metal. An alloy from which Oriental gongs are made, as one of 78 parts copper, and 22 parts tin. (Webster)

Góngora (Colom.). A cavity or vug in a lode. (Halse)

Goniometer. An instrument for measuring the angles of crystals. (Webster)

Goodletite (Aust.). The matrix rock in which rubies are found embedded. (Standard)

Good levels (Corn.). Levels nearly horizontal. (Raymond)

Good roasting. Complete roasting. (Raymond)

Good-shooting coal (Ark.). Coal that can be shot "off the solid" with a large proportion of lump coal and little slack. (Steel)

Goose. 1. (Forest of Dean) A water barrel or tub. (Gresley)
2. (Scot.) A platform carrier for handling coal tubs or cars on steeply inclined roads. (Webster)

Gooseberry stone. A pale yellowish variety of garnet included under the term grossularite. (Webster)

Goose brae (Scot.). *See* Cuddy-brae.

Goose-dung ore. An inferior grade of iron sinter containing silver. Called also Goose silver ore.

Gooseneck. A bent pipe or tube having a swivel joint, so that its outer end may be revolved. (Standard)

Goose silver ore. *See* Goose-dung ore.

Goosing (Cal.). In hydraulic mining, driving the gravel forward with the stream from the giant. The reverse of drawing. (Hanks)

Gopher; Gopher-drift. An irregular prospecting drift following or seeking the ore without regard to maintenance of a regular grade or section. (Raymond)

Gopher hole. 1. Same as a coyote hole. It is sometimes used as a designation for any horizontally drilled hole, usually on a level with the mine or quarry floor (Du Pont). (Bartnes *v.* Pittsburgh Iron Ore Co., 143 Northwestern, p. 117; Spino *v.* Butler, 113 Minnesota, p. 326; 129 N. W. Rept., p. 590)
2. A small irregular prospect hole in mining (Standard). *See* Gopher.

Gopher-hole blasting. A term applied in the Middle West and West to a method of blasting rock by means of charges placed in small tunnels driven into the quarry face at floor level. It is known as "tunnel blasting" in the East. (Bowles)

Gophering. Prospecting work confined to digging shallow pits or starting adits. Term used from similarity of this work to the crooked little holes dug in the soil by gophers. (Weed)

Gorge. 1. A narrow passage between hills; a ravine. 2. A jam; as, an ice-gorge. (Standard)

Gorra. (Mex.). A miner's hat of felt, stiffened with pitch. (Dwight)

Gorrón. 1. (Peru) The lower pivot of the vertical shaft in an ore-grinding mill. (Dwight)
2. (Sp.) A round smooth pebble. (Halse)

Goshenite. A colorless beryl. (Dana)

Goslarite. Native white vitriol or zinc sulphate, $ZnSO_4.7H_2O$. (Dana)

Gossan. A ferruginous deposit filling the upper parts of mineral veins or forming a superficial cover on masses of pyrite. It consists principally of hydrated oxide of iron, and has resulted from the oxidation and removal of the sulphur as well as the copper, etc. (Roy. Com.). Also spelled Gozzan. Iron-hat is also a synonym.

Gossaniferous. Containing or producing gossan. (Century)

Gossany lode. A lode filled with gossan. (Power)

Gotear (Mex.). To drip gently; to leak. (Dwight)

Gothic groove. A groove of Gothic-arch section in a roll. (Raymond)

Göthite; Goethite. A hydrous oxide mineral of iron, $Fe_2O_3.H_2O$. (Dana)

Goths (Staff.). Sudden burstings of coal from the face, owing to tension caused by unequal pressure (C. and M. M. P.) The term "air blast" is sometimes used in metal mines, especially in South Africa.

Got-on-knobs (So. Staff.). A system of working thick coal, being a kind of bord-and-pillar plan, the main roadways being first driven to the boundary. (Gresley)

Gotten (Mid.). Said of a worked out or exhausted mine. (Gresley)

Gouge. 1. A layer of soft material along the wall of a vein, favoring the miner, by enabling him after "gouging" it out with a pick, to attack the solid vein from the side (Raymond). *See* Selvage, *also* Flucan.
2. (Nova Scotia) A narrow band of gold-bearing slate next the vein, which can be extracted by a thin, long-pointed stick. (Lock)
3. To work a mine without plan or system. 4. To contract the face of (a mine working) by neglecting to keep the sides cut away. (Standard)

Gouge slip. An oilstone or hone for sharpening gouges or chisels (Century). *See also* Slip stone.

Gouging. In placer mining, an operation similar to ground sluicing. Also called Booming. (Weatherbe)

Gouging shot. A gripping shot or opening shot used to make the first opening in a straight-room face, or to start a break through. *See* Shot. (Steel)

Gounce (Corn.). A frame made of boards in which small tin ore is washed in a stream of water. A strake. (Pryce)

Goutwater (Forest of Dean). Mine water containing hydrogen sulphide, H_2S. (Gresley)

Governor. 1. A device for regulating the speed of an engine or motor under varying conditions of load and pressure. 2. A device for regulating the flow or pressure of a fluid, as gas or water. (Standard)

Gow (Scot.). A blacksmith. (Standard)

Gowan. Decomposed granite. (Standard)

Gowl (Derb.). To break down, as the roof and sides are said to gowl or gowl out when they fall. (Gresley)

Goyazite. Perhaps $Ca_3Al_{10}P_2O_{23}.9H_2O$. In small rounded grains. A yellowish white mineral. From Brazil. (Dana)

Goyder and Laughton process. A flotation process (1905) that was a variation of the Potter-Delprat process. It was used at Broken Hill, N. S. W. (Liddell)

Gozzan (Eng.). *See* Gossan.

Grab. An instrument for extricating broken boring tools from a bore hole. (Gresley)

Grabau process. A method of obtaining aluminum from cryolite. (Goesel, p. 91.)

Graben. A depressed tract of land caused by faults. (Webster)

Grabhooks. Hooks used in lifting blocks of stone. They are used in pairs connected with a chain, and are so constructed that the tension of the chain causes them to adhere firmly to the rock. (Bowles)

Grab iron. *See* Grab.

Grab sample. A sample of ore or coal taken at random, such as may be obtained by taking small amounts at different places on a car or pile of ore or coal.

Grace o' God (Eng.). An accidental discovery of a vein of ore. (Bainbridge)

Grada (Sp.). A single stope; *G. invertida*, an overhand stope; *G. derecha*, an underhand stope. (Halse)

Gradation. In geology, the bringing of a surface or a stream bed to grade, through erosion, transportation, and deposition by running water. (La Forge). *See* Aggradation and Degradation.

Grade. 1. The amount of fall or inclination in ditches, flumes, roads, etc. 2. To prepare a roadway of more uniform slope. 3. A filling made in improving a roadway. (Steel)
4. An ore which carries a great or comparatively small amount of valuable metal is called respectively a high- or low-grade ore. 5. The degree of strength of a high explosive. Those above 40 per cent nitroglycerin are arbitrarily designated as high-grade and those below 40 per cent strength as low-grade dynamites. (Du Pont)
6. In geology, that slope of the bed of a stream, or of a surface over which water flows, upon which the current can just transport its load, without either eroding or depositing. (La Forge)

Graded. In geology, brought to or established at grade, through the action of running water carrying a load of sediment, by eroding or degrading at some places and depositing or aggrading in other places. (La Forge)

Grader. One who or that which grades; a person, implement, or apparatus employed in grading streets, etc., as, a road-grader. (Standard)

Gradient. 1. Rising or descending by regular degrees of inclination. 2. A part of a road which slopes upward or downward; a grade. 3. The rate of increase or decrease of a variable magnitude, or the curve that represents it. (Webster)

Gradienter. A surveyor's instrument, consisting of a small telescope mounted on a tripod and fitted with a spirit level and a graduated vertical arc, used for determining grades, etc. Called also Grading instrument. Sometimes spelled Gradientor. (Standard)

Gradient post. A post or stake indicating by its height or by marks on it the grade of a railroad, highway, or embankment, etc., at that spot (Webster). A grade stake.

Grading test. *See* Screen analysis.

Grado (Mex.). Degree. (Dwight)

Graduador (Mex.). A manometer, or blast gage. (Dwight)

Graduated tile. Roofing tile for covering curved surfaces, such as a round tower, circular bays, and other circular roofs. (Ries)

Graduation. The method or system of dividing a graduated scale; also, one of the equal divisions or one of the dividing lines in such a scale. (Standard)

Graduator. 1. An apparatus for evaporating a liquid by causing it to flow over large surfaces while exposed to a current of air. 2. A dividing engine. (Standard)

Graffito (Italy). In ceramics, pottery decorated with scratches or scorings. Also called Graffito ware. (Standard)

Grafito (Sp.). Graphite; plumbago. (Halse)

Grafting spade (Eng.). A long narrow spade for digging clay. (Gresley)

Grafting tool. A very strong curved spade used in ditch digging. (Standard)

Grahamite. A hydrocarbon resembling albertite in its jet-black luster. Is soluble in carbon disulphide and chloroform but not in alcohol, and is fusible. Occurs in veinlike masses. Specific gravity 1.145. Has conchoidal fracture and is brittle. (U. S. Geol. Surv.)

Grail. Gravel or sand; anything in fine particles. (Standard)

Grain. 1. A second direction of splitting, less pronounced than the rift and usually at right angles to it. (Bowles)
2. (Eng.) Of coal, the lines of structure or parting parallel with the main gangways and hence crossing the breasts. (Raymond)
3. A unit of weight equal to 0.0648 part of a gram, 0.000143 part of an avoirdupois pound, and 0.04167 part of a pennyweight. A grain of fine gold has a value of 4.306 cents or 2.125 pence. (Lindgren, p. 20)
4. In petrology, that factor of the texture of a rock composed of distinct particles or crystals which depends upon their absolute size. (La Forge)

Grain gold. Gold that has become granular in the process of heating. (Standard)

Grain tin. 1. (Corn.) Crystalline tin ore (Raymond). Oxide of tin in the form of grains or pebbles. (Hunt)
2. The purest and finest white tin, smelted with charcoal. (Century)

Graith; Grathe. 1. (No. of Eng.) To replace, repair, dress, or put in order (Gresley). Probably a variation of grade.
2. (Scot.) A miner's tools; horse harness. (Barrowman)

Gram; Gramme. A unit of weight in the metric system equal to 15.432 grains, 0.643 pennyweight, 0.03215 troy ounce, 0.035274 avoirdupois ounce, and has a fine gold value of 66.45 cents or 2.73275 shillings. (Lindgren, p. 20)

Gram-centimeter. A unit of work; the work done in raising the weight of one gram vertically one centimeter; 981 ergs. (Standard)

Gram-degree. Same as Calory (Standard). *See* Calorie.

Grammatite. Same as Tremolite. (Standard)

Grampus (U. S.). The tongs with which bloomery loups and billets are handled. (Raymond)

Granada (Sp.). Garnet. (Halse)

Granalla (Sp.). Grains of metal; filings; grains of melted gold found in Indian graves. (Halse)

Granate. 1. (Sp.) Garnet; a synonym for Granada. 2. (Mex.) Crystallized cinnabar. (Halse)

Granceo (Sp.). The operation of crushing ore. (Halse)

Graniform. Formed like a grain; composed of grains or granules. (Standard)

Granite. 1. A granular igneous rock composed essentially of quartz, orthoclase or microcline, and mica. Commonly a part of the feldspar is plagioclase. The mica may be either biotite or muscovite or both. Hornblende is a common, and augite an uncommon, component. Apatite, zircon, and magnetite are always present, generally as very small individuals. Commercially, almost all compact igneous rocks are called granite as distinguished from slate, sandstone, and marble. (U. S. Geol. Surv.)

Granite family. The group of crystalline, homogeneous or non-foliated rocks resembling granite, such as syenite, quartz-syenite, granitite, and all varieties of granite itself. (Roy. Com.)

Granitelle. A granite with comparatively little mica, so that it consists almost entirely of quartz and feldspar; binary granite. It has been also used by R. D. Irving for augite-granite. (Kemp)

Granite-porphyry. Practically a quartz-porphyry with a coarsely crystalline groundmass and preponderating phenocrysts. The chief phenocrysts are, however, feldspar. (Kemp)

Granite ware. 1. A fine, very hard pottery resembling ironstone china. 2. Pottery having a variegated surface resembling or suggesting the markings of granite. (Standard)
3. A kind of ironware, coated with an enamel suggesting granite. (Webster)

Granitic. Characteristic of, composed of, pertaining to, or resembling granite. (La Forge)

Graniticoline. Growing upon or attached to granite, as lichens. (Century)

Granitification. The act of forming into granite, or the state or process of being formed into granite. (Century)

Granitite. Biotitic granite. It is much the commonest of the granites. (Kemp)

Granito (Sp.). Granite. (Halse)

Granitoid. A textural term to describe those igneous rocks which are entirely composed of recognizable minerals of approximately the same size. It was suggested by granite, the most familiar of the rocks which show this characteristic. In the granitoid texture each kind of mineral appears in but one generation, and the individuals seldom have crystal boundaries (Kemp). *See also* Granular.

Grano (Sp.). A grain; *G. de oro*, a grain of gold. (Halse)

Granodiorite. A term which has been given special currency by the usage of the U. S. Geological Survey, and which is employed for the intermedite rocks between granites and quartz-diorites. It is a contraction for granite-diorite and is a very useful rock name. *Compare* Adamellite. (Kemp)

Granolith. An artificial stone of crushed granite and cement used for paving. (Webster)

Granophyre. A descriptive term used in connection with microscopic study to describe those groundmasses in quartz-porphyries and microgranites in which the quartz and feldspar crystals have simultaneously crystallized so as to mutually penetrate each other. Micropegmatitic is synonymous (Kemp). The term is but little used.

Granophyric. In petrology, porphyritic with a granular groundmass. (La Forge)

Grant (Eng.). A tract of land leased or ceded for mining purposes. (Pryce)

Granular. Composed of approximately equal grains, either crystalline in outline or rounded by attrition; specifically, in igneous rocks, composed of grains of constituent minerals, each of which has been formed in but one definite stage of the crystallization. (Standard)

Granular quartz. Same as Quartzite. (Dana)

Granulate. To form into grains or small particles, as gunpowder, zinc, etc. (Standard)

Granulated. In ceramics, stippled with a brush in imitation of granules; spotted; mottled. (Standard)

Granulated steel. Steel made from pig iron by a process in which the first step is the granulation of the iron. (Standard)

Granulating machine. 1. A device for reducing metal in a liquid form to fine grain. In a common method the hot metal is dropped on the face of a rapidly revolving disk, which scatters it centrifugally in minute particles. 2. An apparatus for reducing a powder cake to gunpowder. (Standard)

Granulation. 1. The state or process of being formed into grains or small particles. From Latin *granum*, a grain (Rickard). A term used in metallurgy.
2. The process of separating into various sizes the particles of blasting powder. (Du Pont)

Granule. A little grain; a small particle. (Webster)

Granulite. Properly speaking, a moderately fine-grained metamorphic rock composed chiefly of quartz and feldspar, but commonly containing some garnet (La Forge). Sometimes the name is less correctly used for muscovite granite, or for granites containing little else than quartz and feldspar (Kemp). *Compare* Whitestone, 2.

Granulitic. In petrology, characteristic of, composed of, pertaining to, or resembling granulite. (La Forge)

Granza. 1. (Sp.) In California quicksilver mining, second-grade ore obtained in small lumps. (Standard)
2. (Mex.) Any metallic mineral from the size of rice to that of hen's eggs (Dwight). Used in the plural.

Granzear (Mex.). To crush ore into a fine powder by two large stones. (Halse)

Graphic. In petrology, characterized by the mutual interpenetration, commonly in parallel orientation, of the crystals of two minerals, especially quartz and feldspar; said of the texture of some igneous rocks. (La Forge)

Graphic gold. Crystals of sylvanite arranged regularly so as to simulate symbols (Standard). Called also Graphic tellurium.

Graphic granite. A variety of binary granite in which the quartz is disposed in the feldspar in such a way that in cross section it has some resemblance to Hebrew and cuneiform writing, and from this circumstance derives its name. (Roy. Com.)

Graphic ore. Same as Sylvanite. (Standard)

Graphic tellurium. *See* Graphic gold.

Graphite. 1. A soft, steel-gray to black, more or less impure, native form of carbon (U. S. Geol. Surv.). The name of the mineral is often prefixed to the names of rocks containing it, as graphite-gneiss, graphite-schist, etc. (Kemp)
2. Called also black lead and plumbago, because it is used for marking, although lead does not enter into its composition.

Graphitic carbon. That portion of the carbon in iron or steel which is present as graphite. (Raymond)

Grapholite. Any species of slate suitable to be written on. (Webster)

Graplin. *See* Grapnel, 2.

Grapnel. 1. An implement for removing the core left by an annular drill in a bore hole, or for recovering tools, fragments, etc., fallen into the hole. (Raymond)
2. A small anchor with four or five flukes or claws: a grappling iron. (Webster)
3. A heavy tongs used in handling large logs, stones, etc. (Standard)

Grappel. *See* Grapnel, 1.

Grappling iron. An instrument consisting of several iron or steel claws for grappling and holding fast to something. (Century). *See also* Grapnel, 1.

Grasa (Mex.). Slag from smelting operations. (Dwight)

Grasero (Mex.). Slag pile. (Dwight)

Grass (Corn.). The surface over a mine. Bringing ores to grass is taking them out of the mine. (Raymond)

Grass captain (Eng.). An overseer of the workmen above ground (Pryce). A surface foreman.

Grass crop (Scot.). The outcrop of a vein. (Barrowman)

Grasshopper engine (Scot.). A beam engine having one end of the beam supported on a rocking fulcrum. (Barrowman)

Grass roots. A miner's term equivalent to the surface (Roy. Com.) 'From grass roots down' is from the grass roots to the bed rock. (Martin *v.* Eagle Dev. Co., 41 Oregon, p. 456; 69 Pacific, p. 216)

Grate. 1. (Corn.) *See* Screen, 1, as applied to stamps. (Raymond)
2. A frame, bed, or a kind of basket of iron bars for holding fuel while burning. (Webster)

Grate bar. 1. A bar forming part of a fire grate. (Standard)
2. One of the bars forming a coarse screen or grizzley.

Grate coal. Coal which will pass through bars 3¼ to 4¼ inches apart and over 2¼-inch round holes; also called Broken coal. In Arkansas the bars are 7 inches apart and the holes 3 inches to 3¼ inches in diameter. (Steel)

Grate room. A compartment of a glass furnace, with grated bottom for holding the fire. (Standard)

Grate surface. The area of the surface of the grate of a steam boiler, or any part of it. (Standard)

Grating. 1. The plate of perforated metal, or a wire sieve, fixed in the openings in mortar of stamp mills (Roy. Com.). A heavy screen.
2. The act of sorting ores by passing them through grates. (Standard)

Gravel. Small stones and pebbles or a mixture of sand and small stones; more specifically, fragments of rock worn by the action of air and water, larger and coarser than sand. (U. S. Geol. Surv.)

Gravel mine. A placer mine; a body of sand or gravel containing particles of gold. (Skinner) *See also* Gravel pit.

Gravel pit. A pit from which gravel is obtained. (Standard)

Gravel plain (tundra) placers. Placers along the coastal plain of Seward Peninsula, Alaska. (U. S. Geol. Surv. Bull. 259, p. 33)

Gravel powder. Very coarse gunpowder. (Standard)

Gravel stone. A pebble; a calculus. (Webster)

Gravel wall (War.). The junction of a coal seam with overlapping, or unconformable, rocks. (Gresley)

Grave-wax. *See* Hatchettite.

Graveyard shift. A term used in the Western States for the night shift, usually beginning at 11 o'clock p. m. *See* Dying shift; *also* Dog-watch.

Gravimeter. **1.** An instrument for measuring the force or acceleration of gravity. Called also Gravity meter. **2.** An instrument of determining specific gravities, particularly of liquids. *See* Hydrometer. (Standard)

Gravimetric analysis. The quantitative determination of the constituents of a compound by weight; contrasted with Volumetric analysis. (Standard)

Gravitation. *See* Law of gravitation.

Gravity battery. In electricity, a two-fluid battery in which the fluids are separated by their different specific gravities. (Standard)

Gravity fault. *See* Fault.

Gravity plane. A tramline laid at such an angle that full skips running down hill will pull up the empties. (Power)

Gravity railroad. A railroad in which the cars descend by their own weight; an inclined railroad. (Standard)

Gravity solution. A solution used to separate the different mineral constituents of rocks by their specific gravities, as the solution of mercuric iodide in potassium iodide having a maximum specific gravity of 3.19. (Standard)

Gravity stamp. A stamp, usually set in batteries of five, in which the piston is raised by a cam, the stamp crushing the charge in the mortar by its weight, when allowed to fall. (Weed)

Gray antimony. *See* Stibnite.

Grayback (Aust.). A local name for minor cleats that cross the main cleat. (Power)

Grayband. A variety of sandstone for sidewalks; flagstone. (Standard)

Gray beds (No. of Eng.). A stratum formed by a mixture of shale and sand. (Power)

Gray cobalt. Smaltite.

Gray copper. *See* Tetrahedrite.

Grayheads (Aust.). Joints in the rolling country of the Southern Coalfield of N. S. W., which run parallel with the longer axis of a roll; these joints are generally coated with a whitish substance. (Power)

Gray hematite. *See* Specularite.

Gray iron. A cast iron containing much graphitic carbon. (Standard)

Gray manganese. *See* Manganite.

Gray metal. Shale of a grayish color. (C. and M. M. P.)

Gray ore (Corn.). Copper glance. *See* Tetrahedrite. (Raymond)

Gray post (Eng.). Sandstone of a gray color. (G. C. Greenwell)

Grays (Som.). Hard siliceous sandstone. (Gresley)

Gray slag. The slag from the Flintshire lead furnace. It is rich in lead. (Raymond)

Gray's tester. An instrument used for determining the flashing point of heavy oils. (Mitzakis)

Graystone. A grayish, or greenish, compact rock, composed of feldspar and augite and allied to basalt. (Webster)

Graywacke; Grauwacke. **1.** An old name of loose signification, applied to metamorphosed, shaly sandstones that yield a tough, irregularly breaking rock, different from slate on the one hand and from quartzite on the other. The components of graywacke may be largely bits of rocks, rather than fragments of minerals. (Kemp)

2. A variety of sandstone containing abundant grains of biotite, hornblende, magnetite, etc. (La Forge)

Graywacke slate. Micaceous and sandy, fine-grained, slaty, or shaly rocks: formerly so-called. (Standard)

Graywether. One of numerous fragments or blocks of sandstone and conglomerate, covering large tracts in Dorsetshire and Wiltshire, England, supposed to be remnants of eroded Tertiary strata. Called also Druidical, Sarsen, and Saracen stones. (Standard)

Grazón. 1. (Sp.) A fragment of ore which does not pass through a screen. 2. (Venez.) Pisolitic brown hematite. (Halse)

Grease. 1. Properly speaking, this term should only be applied to fatty or oily matter of animal origin; but mixtures of mineral oil with lime- and soda-soaps constitute well-known lubricating greases. (Bacon)
2. Animal fat when soft. Also anything oily or unctuous. From the French *graisse*. A term used in the flotation process. (Rickard)

Grease box. A box containing fat or grease to lubricate a bearing. (Webster)

Grease pot. The third of a series of vats used in tinning sheet-iron or steel. (Standard)

Greaser. 1. A person who oils or greases the mine cars. (Steel)
2. An automatic apparatus which greases the axles of skips as they pass. (Power)
3. A slang name for a Mexican or Spanish-American. (Webster)

Greasy. Applied to the luster of minerals. Having the luster of oily glass, as elaeolite. (Dana)

Greasy bleas (Scot.). *See* Creeshy bleas.

Greasy gold. Fine gold. (Megraw, p. 2)

Greasy quartz. Milk quartz. (Power)

Great coal (Scot.). Large pieces of selected coal. In the East of Scotland, the coal was formerly divided into four grades, great coal, chews, lime coal, and panwood. (Barrowman)

Greave. A ditch. (Standard)

Greda. 1. (Sp.) Fuller's earth; a soft friable earth which absorbs grease. 2. Marl, chalk. 3. (Venez.) Pay gravel; alluvial gold. 4. (Colom.) A carboniferous schist containing nodular pieces of iron ore. (Halse)

Grede (Venez.) A yellow iron-stained clay. (Duryee)

Greek (Scot.). Grit; the texture of a hard rock; coarse sandstone. (Barrowman)

Greek masonry. A style of masonry in which each alternate stone is of the full thickness of the wall. (Standard)

Green carbonate of copper. *See* Malachite.

Green charge. A mixture of ingredients for gunpowder before the intimate mixing in the incorporating mill. (Webster)

Green cinnabar. A green pigment consisting of the fired oxides of cobalt and zinc. (Webster)

Green coal (Aust.). Freshly mined coal. (Power)

Green copperas; Green vitriol. The mineral melanterite, a hydrous ferrous sulphate, $FeSO_4+7H_2O$.

Green earth. 1. Glauconite, found in cavities of amygdaloids and other eruptive rocks, and used as a pigment by artists. (Webster)
2. Chlorite; a variety of talc. (Humble)

Green feldspar. A synonym for Amazon stone; microcline. (Chester)

Green hole. A furnace tap hole in which clay is not properly set, and through which the drill may break and let iron out unexpectedly. (Willcox)

Greenhouse. In ceramics, a moderately warmed building for partly drying green pottery. (Standard)

Green iron ore. The mineral dufrenite; aproximately, $FePO_4.Fe(OH)_3$. (Dana)

Green lead ore. *See* Pyromorphite.

Green marble. A commercial term for serpentine.

Green mineral. Green carbonate of copper; malachite. (Standard)

Green ocher. A yellow ocher mixed with potassium ferrocyanide. (Standard)

Greenockite. Cadmium sulphide, CdS. Contains 77.7 per cent cadmium. Greenockite occurs as a secondary mineral in zinc deposits in various parts of the United States, but not as a commercial deposit at any place. The majority of sphalerite deposits are cadmiferous, and cad-

mium in commercial quantity is obtained as a by-product in smelting these ores at certain plants. (U. S. Geol. Surv.) *See* Furnace cadmium.

Green oil. In the Scottish shale-oil industry, the once-run crude oil after chemical treatment. It is distilled in the first-stage oil stills and is fractioned into naphtha, light oil, heavy oil, and heavy oil and wax. (Bacon)

Green roof. A miner's term for a roof which has not broken down or shows no sign of taking weight. (Gresley)

Greenroom. A chamber for the reception of unburned and undried pottery. (Standard)

Greensand. Sedimentary deposit consisting, when pure, of grains of glauconite, which have a dark greenish color. (Webster)

Green sand. A highly siliceous sand containing a little magnesia and alumina, mixed with about one-twelfth its bulk of powdered coal or charcoal, used when dampened for making molds; distinguished from dry sand (Webster). An unburned molding sand.

Greensand beds. In general, any Cretaceous or Tertiary bed containing a green iron-potassium silicate; specifically, the Lower Cretaceous of England, whether containing the green silicate or not. (Standard)

Greensand marl. Sand or marl containing glauconite (U. S. Geol. Surv.). *See* Greensand; Marl.

Greensand of Peru. An early synonym for Atacamite, because found there in the form of sand. (Chester)

Greenstone. An old field name for those compact, igneous rocks that have developed enough chlorite in alteration to give them a green cast. They are mostly diabases and diorites. Greenstone is partially synonymous with trap. It is often used as a prefix to other rock names (Kemp). The term is used frequently when no accurate determination is possible.

Green tar. Barbados petroleum. (Bacon)

Green verditer. *See* Verditer, 2 and 3.

Green vitriol. Ferrous sulphate; copperas, melanterite. Called also Martial vitriol. (Standard)

Green ware. Damp, recently made, unburned pottery, requiring to be dried before burning or baking. (Standard)

Greillade (Fr.). Iron ore in coarse powder, mixed with charcoal dust for reduction by the Catalan process. (Webster)

Greisen. A granitoid but often somewhat cellular rock, composed of quartz and muscovite or some related mica, rich in fluorine. It is the characteristic mother rock of the ore of tin, cassiterite, and is in most cases a result of the contact action of granite and its evolved mineralizers. (Kemp)

Greña (Mex.). Undressed ore. (Dwight)

Grenate. Garnet (Standard). Also spelled Grenat.

Grès (Fr.). 1. Grit. 2. Sandstone. 3. Stoneware. (Standard)

Grès cérame; Grès de Flandres (Fr.). A fine German stoneware, usually with a salt glaze, not made specially in Flanders, but in Coblentz and Cologne. (Standard)

Greve. A ditch or trench. (Standard)

Grewt. An earth of different color from that of the main deposit, found in searching for mines on the banks of rivers (Standard). Also spelled Greut. A variation of groot, meaning soil.

Grey wethers (Eng.). *See* Graywether.

Grid. 1. A grated opening. 2. A section of electrical resistance, usually made of cast iron. (C. and M. M. P.)
3. A wire-bottomed mining sieve.
4. A battery plate somewhat like a grating; specifically, a zinc plate in a primary battery, or a lead plate, either perforated or furnished with depressions, for retaining the active material in a storage battery. (Standard)

Gridaw (So. Wales). Pulley frames or head gear. (Gresley)

Griddle; Riddle. 1. (Corn.) A miner's sieve to separate ore from halvans. (Raymond)
2. To screen ore with a griddle. (Webster)

Gridiron twinning. *See* Crossed twinning.

Gridiron valve. A slide valve having many ports corresponding to ports in the seat. (Standard)

Grieta (Mex.). A crevice; fissure. (Dwight)

Grieve. 1. (Scot.) A weigher; a pit-headman; a hill salesman. (Barrowman)
2. A manager; an overseer. (Webster)

Griff (Eng.). A steep, rocky glen. (Standard)

Griffin roller mill. A centrifugal mill, like the Huntington, except there is one roller only. *See* Huntington mill. (Liddell)

Grilio furnace. A mechanically-fed muffle furnace. (Ingalls, p. 130)

Grimes (So. Wales). *See* Bell mold.

Grind. 1. To reduce to a powder by friction as in a mill. 2. To polish or sharpen by friction. (Webster)

Grinder. One who or that which grinds, as an emery wheel for grinding tools, a machine for crushing ore, etc. (Webster)

Grinders' asthma, rot, or phthisis. Disease of the lungs consequent upon inhaling the metallic dust produced in grinding metals. (Standard)

Grinding bed. A machine for grinding stone slabs, consisting of a laterally moving table on which the slab is placed, and a heavy rotating iron disk, whose lower surface abrades or polishes the upper surface of the stone. (Standard)

Grinding bench. A stone slab on which to fasten by plaster of Paris, in a level position, a plate of glass the upper surface of which is to be ground or polished. (Standard)

Grinding lathe. A lathe of special construction in which the work revolves on dead centers while acted on by an emery wheel. (Standard)

Grinding plate. 1. A piece of steel or iron by the medium of which ore is ground against another hard surface. (Rickard)
2. A heavy cast iron disk rotating on a vertical axis, used to grind or polish plate glass. (Standard)

Grinding slip. A free-cutting oilstone or whetstone; a hone. (Standard)

Grinding vat. A mill for grinding flints or clay used in making porcelain. It is a form of the arrastre. (Century)

Grindlet. A little ditch or drain. (Standard)

Grindstone. 1. A tough sandstone of fine and even grain, composed almost entirely of quartz, mostly in angular grains. It must have sufficient cementing material to hold the grains together but not enough to fill the pores and cause the surface to wear smooth. (U. S. Geol. Surv.)
2. A large circular stone made from sandstone and used quite extensively for the sharpening of many different tools and instruments. (Pike)

Grindstone grit. A kind of grittty rock from which grindstones are made. (Standard)

Gringo. In Spanish America, any one of English blood or speech: a contemptuous epithet. (Standard)

Griotte marble. A French marble of a beautiful red color and often varigated with small dashes of purple and spots or streaks of white, as in the variety locally known as *griotte oeil de perdrix* from the French Pyrenees. (Merrill)

Grip. 1. A small, narrow cavity. (Raymond)
2. To turn into the side of a working place. (Steel)
3. A notch cut into the side of a mass of stone, into which a wedge may be driven to separate the mass (Bowles). Also called Side shear.
4. (Scot.) A pick. (Barrowman)
5. An apparatus attached to a car for clutching a traction cable. 6. A gripsack or valise. (Webster)
7. (Eng.). To dig trenches or drains in. 8. A grappling tool for drawing up well-boring rods. (Standard)

Gripe. A strap brake or ribbon brake on hoisting apparatus. (Standard)

Griper (Eng.). A Thames coal-barge or collier. (Standard)

Gripper. A claw of a submarine dredger. (Standard)

Gripping shot. A shot so placed that the point or inner end of the hole is considerably farther from the face of the coal to be broken than is the heel or outer end of the hole. *See also* Shot.

Grip wheel. A wheel, the periphery of which is fitted with a series of toggle-jointed, cast-steel jaws that grip the rope automatically. (C. M. P.)

Grison stone. A gray freestone. (Webster)

Grisou (Fr.). Fire damp.

Grist (So. Wales). A black, coaly stratum, indicating a probable bed of coal not far off. (Gresley)

Grisú (Sp.). Fire damp. (Lucas)

Grit. 1. In petrology, a sandstone composed of coarse, angular grains and very small pebbles. (La Forge)
2. An artificial stone for sharpening tools. Standard grades are coarse, medium, and fine. Coarse stones cut very rapidly, but leave a rough edge. Medium stones do not cut as fast as coarse stones but leave a smoother edge. Fine stones are still slower cutting, but are useful where extremely fine edges are desired. (Pike)
3. Rough, hard particles; sand or gravel. 4. Degree of hardness with openness of texture or composition; allied to buhrstone and the like. (Standard)

Grizzle. 1. (Eng.) Inferior coal with an admixture of iron pyrite. (Gresley)
2. A second-rate brick, underburnt, gray in color, and deficient in strength. (Webster)

Grizzly. 1. (Cal.) An iron grating that catches the larger stones passing through the sluices and throws them aside. (Hanks)
2. A grating of iron or steel bars for screening ore, etc. (Webster)
3. Guard rails or covering to protect chutes, manways, winzes, etc., in mines. (Montana Stat., Laws, 1911, Sec. 3)

Grog. Ground up pieces of burned clay or brick, added to the raw clay mixture for the purpose of decreasing the shrinkage and density of the burned ware. (Ries)

Groin (Eng.). A structure of piling, sometimes with a stone apron at the end, to accumulate sand and shingle on a beach, and to act as a breakwater. (Standard)

Gröndal magnetic separator. A device utilizing a magnetic field for the concentration of certain magnetic ores. It consists of a vertical revolving cylinder made up of rings of cast iron with the spaces between containing the wires for the electric current. Each ring is so magnetized as to be a little stronger than the one above. There is another cylinder of wood studded with soft wrought-iron pegs, a ring of pegs being opposite each cast-iron ring. The magnetic portion of the ore (usually crushed below 12 mesh) is carried around on the cast-iron rings until it gets near the pegs, to which it jumps because of their induced magnetism. It is then carried on these pegs out of the magnetic field and thrown off. (Liddell)

Groove. 1. (Derb.). The place where a miner is working. Miners are (1747) called groovers. (Hooson)
2. A mine, from the German *Grube*. (Raymond)

Groove fellow (No. of Eng.). A mate or fellow workman in a mine. (Standard)

Groover (No. of Eng.). A miner. (Standard)

Groroilite. A nearly black earthy manganese or wad, streaked with dark-red markings, occurring in parts of Europe. (Standard)

Grorudite. Brögger's name for a porphyritic, dike rock from Grorud, near Christiania, Norway. The phenocrysts are microcline and aegirite; the groundmass consists of rectangular orthoclase, quartz and aegirite. It is a variety of granite porphyry. (Kemp)

Gros morceaux (Belg.). Coal in very large lumps. (Gresley)

Gross ton. The long ton of 2240 pounds avoirdupois.

Grossularite. Calcium-aluminium garnet, $3CaO . Al_2O_3 . 3 SiO_2$; cinnamon stone. (Dana)

Grotto. A small cavern or a cavern-like apartment or retreat, natural or artificial; especially, a cavern having some attractive features, as beautiful stalactite formations, or rockwork. (Standard)

Grouan (Corn.). Gravel, rough sand. Also called Gowan. *Hard grouan* is granite or moorstone. *Soft grouan* is the same material in a lax and sandy state. *Grouan lode*, any tin lode which abounds with this gravel. (Pryce)

Grouder (Corn.). A mixture of grouan and clay, used for scouring wood work. (Pryce)

Ground. 1. (Corn.) The rock in which a vein is found; also, any given portion of the mineral deposit itself. (Raymond)
2. In electricity, a connection with the earth. A ground plate. (Standard)

Ground air. Air inclosed in porous surface soil, like surface moisture or ground water. (Century)

Ground bailiff (Eng.). An inspector or superintendent of a mine. (Standard)

Ground block; Ground crab (Eng.). A species of capstan used for lowering the sinking pumps. (Gresley)

Ground circuit. An electric circuit completed by the ground; an earth circuit. (Standard)

Ground coal; Grounds (Scot.). The bottom of a coal seam. (Barrowman)

Ground crab. *See* Ground block.

Ground detector. A device, as in a central power station, to indicate where a ground connection, entailing loss of electricity, has taken place. (Standard)

Grounded circuit. A circuit that is permanently grounded at one or more points. (H. H. Clark)

Ground hog. *See* Barney.

Ground ice. Ice which sometimes forms on the bottom of either running or still waters. It often has stone and mud attached to its bottom (Webster). Also called Anchor ice.

Grounding. 1. *See* Ground, 2.
2. In marble-working, the act or process of polishing marble with emery. 3. *See* Ground-laying. (Standard)

Ground laying. In ceramics, the process of applying a coat of boiled oil to porcelain ware, to receive the colored enamel; bossing; grounding. (Standard)

Groundman. A man employed to work on the ground, as in digging or excavating. (Webster)

Groundmass. The relatively finely crystalline, or glassy, portion of a porphyritic rock as contrasted with its phenocrysts. Not to be confounded with *basis*, as will be seen by referring to the latter. (Kemp)

Ground moraine. In geology, the irregular sheet of till deposited partly beneath the advancing glacier and partly directly from the ice when it melts away. (La Forge)

Ground plate. 1. A groundsill. 2. A bedplate supporting railroad sleepers or ties. 3. In electricity, a metal plate in the ground forming the earth connection of a metallic circuit. (Standard)

Ground rent (Eng.). Rent paid for the surface occupied by a colliery plant. (Gresley)

Ground return. That part of an electric circuit as the earth, or metallic conductors intimately associated with the earth, and which is practically at earth potential at all points. (H. H. Clark)

Ground rope (Scot.). The rope connecting hanging pumps to a ground crab. (Barrowman)

Groundsel. *See* Groundsill.

Groundsill. A bed piece or foundation timber supporting a timber superstructure as a set of mine timbers. A ground plate. (Webster)

Ground sluice. 1. A channel or trough in the ground through which auriferous earth is sluiced for placer mining. 2. To wash down a bank of earth with a stream of water. (Webster)

Ground spears. Wooden rods (one on each side of the pump) by which a sinking pump is suspended. (Gresley)

Groundstone. A foundation; groundwork. (Webster)

Ground water. The water which permeates, in an unbroken sheet, the rock masses of the earth, filling their pores and fissures.

Ground-water discharge. The return of ground water to the surface. (Meinzer)

Ground-water divide. The crest line of a water table. On the opposite sides of this line the water table slopes in opposite directions (Meinzer). *Compare* Watershed.

Ground-water level. The level below which the rock and subsoil, down to unknown depths, are full of water. (Chamberlin, vol. 1, p. 67)

Groundwork. The foundation work of a structure. (Standard)

Group. 1. In geology, commonly and loosely, the unit of stratigraphic classification. 2. Specifically, (*a*) in the usage of the U. S. Geological Survey, two or more associated formations formerly regarded as one but now separated in some areas; (*b*) according to the International Geologic Congress, the stratigraphic division of highest rank, coordinate with era. (La Forge)

Grouser. A temporary pile or heavy iron-shod pole driven into the bottom of a stream to hold a drilling or dredging boat or other floating object in position. (Century)

Grout. 1. A term applied to the waste material of all sizes obtained in quarrying stone. (Perkins)
2. (Eng.) Thin mortar poured into the interstices between stones and bricks. (C. and M. M. P.)
3. A coarse kind of plaster or cement, usually studded with small stones after application, sometimes used for coating walls of a building. (Webster)
4. A thin cement mixture forced into the crevices of a stratum or strata to prevent ground water from seeping or flowing into an excavation. Frequently employed in shaft sinking and bore-hole drilling.

Grouting. 1. The process of filling in or finishing with grout. 2. The grout thus filled in. (Century)

Grove; Groove (Eng.). A drift or adit driven into a hillside from which coal is worked (G. C. Greenwell). *See also* Groove, 1 and 2.

Growan; Grouan (Corn.). A name applied by miners to granite and similar rocks. (Ure) *See also* Grouan.

Growl (Mid.). Coal pillars are said to growl when they are undergoing a crushing weight. (Gresley)

Grow-on. Quarrymen's term to designate the place where the sheet structure dies out, or the place where two sheets appear to grow onto one another. (Perkins)

Growth (Scot.). The rate of entrance of water into a pit or mine working. (Barrowman)

Groze (Scot.). To turn a chisel in the bottom of a bore hole, by which means the borer, from a sense of feeling and hearing, knows when a change of strata occurs. (Barrowman)

Grozing iron. 1. A steel tool formerly used for cutting glass. 2. A bulbous tool for smoothing the soldered joints of lead pipe. (Webster)

Grubbin. *See* Gubbin.

Grube (Ger.). A mine. (Davies)

Grub saw. A saw made from a coarsely notched blade of soft iron, provided with a wooden back; used, with sand, for sawing stone by hand power. (Standard)

Grubstake (West. U. S.). Supplies furnished to a prospector on promise of a share in his discoveries. So called because the lender stakes or risks the grub (food), etc., so furnished. (Webster)

Grubstake contract. An agreement between two or more persons to locate mines upon the public domain by their joint aid, effort, labor, or expense, and each is to acquire by virtue of the act of location such an interest in the mine as agreed upon in the contract. (Marks *v.* Gates, 2 Alaska, p. 524; Cascaden *v.* Dunbar, 2 Alaska, p. 412; Berry *v.* Woodburn, 107 California, p. 504; Meylette *v.* Brennon, 20 Colorado, p. 242; Hartney *v.* Gosling, 10 Wyoming, p. 346; 68 Pacific, 1123; Elliott *v.* Elliott, 3 Alaska, p. 365)

Gruell (Irish). Coal. (Standard)

Grueso (Sp.). Lump ore. The term is in use at the quicksilver mines of California. (Raymond)

Gruff (Eng.). A name given to an old mine on the Mendip Hills (Hunt). A pit or shaft.

Grunching (Aust.). Shooting-fast, *i. e.*, shooting in the solid. (Power)

Grundy. Granulated pig iron used in making granulated steel. (Webster)

Grunstane (Scot.). A grindstone. (Standard)

Grunter. A hooked rod to aid in supporting a crucible (Standard). A founder's term.

Grupiaras (Braz.). Bench placers on the slopes of hills. (Halse)

Guaca. 1. (Sp. Am.) A narrow tunnel or drift in a hill. 2. (Peru) An ancient Indian grave. (Halse)

Guadalcazarite (Sp.). A variety of cinnabar containing zinc. (Standard)

Guag (Corn.). A place from which the ore has been extracted (Davies). A variation of gwag.

Guaira (Peru). A wind furnace made of clay, used by the Indians for smelting ores. (Halse)

Guairona (Peru). Guard rails at mouth of a shaft. (Dwight)

Guaje (Mex.). A gourd for dipping water. (Dwight)

Gualda (Peru). Chalcopyrite. (Halse)

Gualdra (Mex.). Long and stout beam, generally sustaining other beams, or a heavy weight. (Dwight)

Guano. A substance found in great abundance on some coasts or islands frequented by sea fowls and composed chiefly of their excrement. It is rich in phosphates and nitrogenous matter. (Webster)

Guaquero (Colom.). One who searches for treasure in Indian graves, or *guacas*. (Halse)

Guarache (Peru). 1. Overtime work, generally at night. 2. A sandal. (Dwight)

Guaracú (Sp. Am.). Basalt; diorite. (Lucas)

Guard. 1. A support in front of a rolltrain to guide the bar into the groove, sometimes called a sideguide. (Raymond)
2. Any fixture or attachment designed to protect against injury. 3. To protect from danger; to keep in safety; to defend. (Webster)

Guarda. 1. (Sp.) A thin parting between a lode and the wall rock. (Davies)
2. (Mex.) Immediately adjacent country rock. 3. A guard. (Dwight)

Guardafierros (Mex.). A tooolman. (Dwight)

Guardaraya (Mex.). 1. Landmark; monument. 2. The end and side lines of a mining claim (Dwight). 3. A surveyor's mark used underground for measuring work. (Halse)

Guardatiro (Mex.). Person issuing mining supplies to the miners. (Dwight)

Guard plate. A plate in front of an iron furnace, covering the tap hole through which the slag is drawn out. (Standard)

Guard rail. An additional rail placed beside the rail in service, to compel the flange of the wheels to run close to the latter in crossing over frog points or entering switches. (Century)

Guayaquillite. A pale yellow, amorphous, nonresinous, oxygenated hydrocarbon, from near Guayaquil, South America; it has the specific gravity 1.092, begins to fuse at 70° C., and is soluble in alcohol. (Bacon)

Gubbin (Eng.). An argillaceous iron ore, found in Staffordshire, England (Standard). Sometimes spelled Grubbin.

Gudgeon. 1. An iron pin to fasten together blocks of stone. (Webster)
2. (Eng.) A bit of wood used for roofing a mine. (Bainbridge)
3. The bearing of a shaft, especially when made of a separate piece. 4. A metallic journal set into the end of a wooden shaft. (Standard)

Güedales (Mex.). Irregular contact veins of copper ore occurring in porphyry. (Halse)

Gueulette (Fr.). In glass making; the back door of an annealing oven. (Standard)

Gug (Som.). A self-acting inclined plane underground; sometimes called a Dip incline. (Gresley)

Guhr. *See* Keiselguhr.

Guhr dynamite. An explosive prepared by usually mixing three parts nitroglycerin and one part kieselguhr. Other proportions may be used. (Brunswig, p. 296)

Guía (Sp.). 1. Indications (of a vein or pay streak, or of metal in a panning test). 2. Guide for cage in shaft. (Dwight)
3. A short drill used for starting a drill hole. 4. (Colom.). A main level or gallery. 5. (Peru) A blasting fuse. 6. *G. de filón*, a leader in a lode; guide; feeder, or pay streak. 7. (Peru) The final sample of ore used as a test. (Pfordte)

Guide plate (Scot.). A cast-iron plate containing grooves or ridges to guide hutches or cars onto rails. (Barrowman)

Guide pulley. *See* Guides, 7.

Guide rope. A cage guide. (Standard)

Guides. 1. The timbers at the side of a shaft to steady and guide the cage. 2. The holes in a crossbeam through which the stems of the stamps in a stamp mill rise and fall. 3. In a rolling mill, a wedge-shaped piece held in the groove of a roll to prevent the sticking of the bar by peeling it out of the groove. When

the guide is held by a hanger or counterweight against the underside of the roll, it is called a hanging guide. (Raymond)
4. (Corn.) Cross veins in the St. Just district. 5. A boring rod having an enlargement or wings fitted to it to suit the size of the bore hole for steadying the rods when a considerable depth has been attained. (Gresley)
6. In a steam engine, a cross-head guide. 7. A pulley to lead a driving belt or rope in a new direction, or to keep it from leaving its desired direction. 8. A curved plate directing a sheet of water against the buckets of a water wheel. (Standard)

Guide tube. A tube for grinding a bit or drill. (Standard)

Guiding bed (Eng.). A thin band of coal leading to the regular seam. (Gresley)

Guija (Mex.). Gangue. Sometimes applied to quartz; a pebble. (Dwight)

Guijarro (Sp.). 1. A pebble; bowlder. 2. Any siliceous stone. (Halse)

Guijo (Mex.). A pointed pivot, upon which turns the upright centerpiece of an *arrastre*. (Dwight)

Guijola (Mex.). A double bellows used for supplying blast to copper-smelting furnaces. (Halse)

Guijoles (Mex.). Kidney-shaped pieces of cassiterite found in rhyolite. (Halse)

Guijoso. 1. (Sp.) Gravelly; full of pebbles. 2. (Mex.) Quartzose. (Halse)

Guillotine. A machine for breaking iron with a falling weight. (Raymond)

Guimet blue. An artificially prepared ultramarine. (Webster)

Guincho (Port.). A winch or drum. (Halse)

Guinea gold. Twenty-two carat gold, of which guineas were coined. (Standard)

Guíngaro (Mex.). Pickaxe. *See* Huingaro. (Dwight)

Guixa (Sp.). Quartz. (Hanks)

Gulch (Cal.). A narrow mountain ravine; a small cañon. (Hanks)

Gulching (No. Staff.). The moving and cracking noise underground due to the settling of the mine roof. (Gresley)

Gulf. A large deposit of ore in a lode. (Century)

Gullet. 1. An opening in the strata. (Raymond)
2. A narrow working cutting used for a dirt-car track. (Standard)

Guillies (Corn.). Worked-out cavities in a mine. (Duryee)

Gully. 1. A small watercourse with steep sides, usually cut out of clay or earth. (Roy. Com.)
2. A metal tram rail or tram plate. (Century)

Gulph of ore. A very large deposit of ore in the lode (Whitney). A variation of gulf.

Gum. 1. (Scot.) Very small coal, for example, that which will pass through a screen having a mesh of one-fourth inch or less (Barrowman). Slack; screenings.
2. (N. Z.) *See* Kauri resin.

Gumbo. 1. A name current in Western and Southern States for those soils that yield a sticky mud when wet (Kemp). (Southwest Mo.) A putty-like clay associated with lead and zinc deposits. (Tex.) A clay encountered in drilling for oil and sulphur.
2. The stratified portion of the lower till of the Mississippi Valley. (Standard)

Gum digger (N. Z.). One whose occupation is to dig the fossil resin of the Kauri pine, which is used in the manufacture of varnish. (Webster)

Gum dynamite. Explosive gelatin. (Standard)

Gummite. An alteration product of uraninite of doubtful composition. (Dana)

Gun. A bore hole in which the charge of explosive has been fired with no other effect than to blast off a small amount of material at the mouth of the bore hole; also called a Bootleg or "John 'Odges" (Du Pont). *See* Blown-out shot.

Gunboat. A self-dumping box on wheels, used for raising (or lowering) coal in slopes; a monitor, a skip. (Chance)

Guncotton. A nitrocotton of the highest nitration or containing the greatest possible percentage of nitrogen. Sometimes called Insoluble cotton. It is used as a bursting charge for submarine mines and for demolishing bridges and other structures in warfare. (Du Pont)

Gunite. 1. A cement applied, by a cement gun, to the roof and sides of a coal mine. 2. To cement with a cement gun.

Gun metal. An alloy of copper with tin, or zinc, and sometimes a little iron. The common formula is nine parts copper to one tin; Aich's metal and some other gun metals contain zinc and iron but no tin. (Raymond)

Gunned shot (Scot.). *See* Blown-out shot.

Gunner (Kans.). A blown-out shot.

Gunnies. 1. (Corn.) In mining, breadth or width. A single gunnies is a breadth of 3 feet. (Standard) 2. (Corn.) The vacant space left where the lode has been removed (Raymond). A crevice. Also spelled Gunniss.

Gunniss (Corn.). *See* Gunnies.

Gun of wood (Derb.). A hollow plug. (Hooson)

Gunpowder. A black or brown explosive substance, consisting of an intimate mechanical mixture of saltpeter, charcoal, and sulphur, used in gunnery and blasting. It consists of 70 to 80 per cent saltpeter, and 10 to 15 per cent of each of the other ingredients. (Webster)

Gunpowder paper. Paper spread with an explosive compound. It is rolled up for use in loading. (Standard)

Gunpowder press. A press for compacting meal powder before granulating into gunpowder. (Standard)

Gunter's chain. The chain commonly used in surveying, having 100 links, each 7.92 inches long. (Standard)

Gurdy (Scot.). An arrangement of three pulleys with brake for self-acting inclines. (Barrowman)

Gurgulho (Braz.). A horizontal, bedded plateau deposit. It is made up of coarse rocks with more or less red clayey earth and frequently contains diamonds; a pudding stone. (Halse)

Gurgusco (Panama). Extracting the rich ore. (Lucas)

Gurgusero (Panama). A spoiler. (Lucas)

Gurhofite. A snow-white variety of dolomite, containing a large percentage of calcium. (Standard)

Gurlet. A mason's pickax having one cutting edge and a point. (Standard)

Gurmy. A mine level; working. (Standard)

Gurt (Corn.). A channel to carry water from an ore-dressing floor. (Davies)

Gusher. An oil well with a large natural flow. (Webster)

Guss (Bristol, Eng.). A short piece of rope by which a boy draws a tram or sled in a mine. (Gresley)

Gut. To rob, or extract, only the rich ore of a mine. (Weed)

Gutter. 1. (Forest of Dean). An airway through a goaf. 2. Candles or dips, when subjected to the warm air of a mine, waste away very rapidly, and are said to gutter. (Gresley)
3. The dry bed of a river of Tertiary age, containing alluvial gold, often covered to a great depth by volcanic matter or débris; also called Bottom. 4. A channel for running water. (Webster)
5. (Aust.) The lowest portion of an alluvial gold deposit. (Skinner)

Guttering. 1. A channel cut along the side of a mine shaft to conduct the water back into a lodge or sump. (Gresley)
2. A process of quarrying stone in which channels, several inches wide, are cut by hand tools, and the stone block detached from the bed by pinch bars. (Greenwell, p. 151)

Gutter-up (Mid.). A roof fall which extends to an excessive height. *See also* Cut-up. (Gresley)

Gutzkow's process. A modification of the sulphuric-acid parting process for bullion containing large amounts of copper. A large excess of acid is used; the silver sulphate is then reduced with charcoal, or, in the original process, ferrous sulphate. (Liddell)

Guy. A guide; a rope, chain, or rod attached to anything to steady it; a rope which holds in place the end of a boom, or spar; a rod or rope attached to the top of a derrick and extending obliquely to the ground where it is fastened. (Webster)

Guy anchor. The support to which derrick guys are attached. (Bowles)

Guy rope. *See* Guy.

Guy rings. Rings on the head block of a derrick mast, to which the guy ropes are attached. (Standard)

Gwag (Corn.). Rubbish; an old mine working. (Webster)

Gweeon (Aust.). An aboriginal stone hatchet. (Webster)

Gwythyen (So. Wales). A mineral vein or seam. (Gresley)

Gymnite. A synonym for Deweylite. (Chester)

Gypseous; Gypsiferious. Resembling, containing, or consisting of gypsum. (Webster)

Gypsite. . *See* Gypsum.

Gypsum. Hydrous calcium sulphate, $CaSO_4+2H_2O$. Contains 32.5 per cent lime, 46.6 per cent sulphur trioxide, and 20.9 per cent water. *Alabaster* is a fine-grained compact variety, white, shaded, or tinted. *Gypsite* is an incoherent mass of very small gypsum crystals or particles, and has a soft, earthy appearance; contains various impurities, generally silica and clay. *Satin spar* is a fine fibrous variety which has a pearly, opalescent appearance. *Selenite* is a variety which occurs in distinct crystals or in broad folia. Some crystals are 3 or 4 feet long and clear throughout. (U. S. Geol. Surv.)

Gypsum wedge. A thin wedge-shaped piece of selenite. (A. F. Rogers)

Gyratory breaker; Gyratory crusher. A rock crusher built on the principle of the old fashioned coffee mill. It consists of a vertical spindle the foot of which is mounted in an eccentric bearing within a conical shell. The top carries a conical crushing head revolving eccentrically in a conical maw. There are three types of gyratory; those which have the greatest movement on the smallest lump; those that have equal movement for all lumps; those that have greatest movement on the largest lump. (Liddell)

H.

Haas furnace. A muffle furnace of the McDougall type, the hearths being separated by suitable flues through which the products of combustion from the fireplace are made to pass. (Ingalls, p. 142)

Haas tester. An instrument for obtaining the flashing point of petroleum. (Mitzakis)

Haba (Sp.). A piece of ore more or less rounded and encased in gangue. (Halse)

Habilitador (Sp.). One who supplies money for working a mine. (Min. Jour.)

Habilitador (Peru). A money lender. (Lucas)

Habilitar (Peru). To furnish working funds for a mine or mill. (Dwight)

Habit. In crystallography, the characteristic form, as determined by the faces developed and their shapes and relative proportions, of the crystals of a given mineral from the same general region or geologic association (La Forge). In the crystals of a given species there is constancy of angle between like faces. but the forms of the crystals may be many. As the relative size of a crystal changes, the *habit* may vary indefinitely. *See* Form. (Dana)

Hacer (Sp.). *H. adelantos*, to advance money; *H. mina*, to make a mine. (Halse)

Hacha (Sp.). Ax or hatchet. (Halse)

Hachazuela (Mex.). Adze. (Dwight)

Hachero (Sp.). A wood cutter. (Halse)

Hachita (Mex.). Hatchet. (Dwight)

Hachure. A short line used in drawing and engraving, especially in shading and denoting different surfaces as in map drawing to represent slopes of the ground. (Webster)

Hacienda (Sp.). 1. Exchequer; treasury; public revenue; capital; funds; wealth; landed estate; establishment. 2. In mining it is usually applied to the offices, principal buildings, and work for reducing the ores (Raymond); *H. de beneficio*, metallurgical works; *H. de fundición*, smelting works; *H. de maquila*, a custom mill. (Dwight)

Haciendero (Sp.). The superintendent of the hacienda. (Min. Jour.)

Hack. 1. (No. of Eng.) A pick or tool with which colliers cut or mine the coal. (Gresley)
2. A sharp blade on a long handle used for cutting billets in two. (Raymond)
3. To pile up edgewise for the purpose of drying, as green molded bricks. 4. A set of bars in a tail race. 5. A place where bricks are set to dry; also, a pile of green bricks. (Standard)

Hackbarrow. A barrow for taking bricks from the molders to the hacks. (Webster)

Hack hammer. A hammer resembling an adz, used in dressing stone. (Webster)

Hacking. 1. The operation of picking a grindstone or an abrading wheel to remove the glaze. 2. The use of two thin masonry courses instead of one as thick as both of them. 3. In gem cutting, a series of cuts in a metal lap to serve as receptacles for the abrasive powder. 4. The stacking of bricks for drying. (Standard)

Hacking board. A board on which to pile unburned dried bricks. (Standard)

Hack iron. A miner's pick ax or hack. A chisel or similar tool for cutting metal, as wire, into nails. (Webster)

Hackly. Showing jagged points in fracture (Standard). A term applied to the fracture of metals.

Hacksaw. A fine toothed saw having a narrow blade stretched in a frame, for cutting metal. (Webster)

Hade. 1. The angle of inclination of a vein measured from the vertical; dip is measured from the horizontal. *See* Underlay, 2. (Skinner)
2. To deviate from the vertical; said of a vein, fault, or lode. (Webster)

Haenisch and Schroeder process. A method for the recovery of sulphur as liquid sulphurous anhydride from furnace gases. (Ingalls, p. 166)

Hag. 1. (Scot.) A cut; a notch. 2. To cut as with an ax; to cut down the coal with the pick. (Barrowman)
3. (No. of Eng.) A quagmire or pit in mossy ground; any broken ground in a bog. (Century)

Hähner furnace. A continuously-working shaft furnace for roasting quicksilver ores. The fuel is charcoal, charged in alternate layers with the ore. The Vall' Alta furnace is a modification, having the iron tubes of the Alberti. (Raymond)

Haiarn (Wales). Iron. (C. and M. M. P.)

Haimanta. One of a series of beds of great thickness and varying lithological character, overlying the crystalline schists, and underlying the Lower Silurian, in the Himalaya mountains (Standard)

Hair plate. *See* Bloomery.

Hair pyrites. Same as Millerite. (Standard)

Hair salt. Epsomite when in silky fibers. A form of alunogen. (Webster)

Hair stone. Quartz thickly penetrated with hairlike crystals of rutile, actinolite, or some other mineral. (Webster)

Hair zeolite. A synonym for fibrous zeolite, which may be natrolite, scolecite, or mesolite. (Chester)

Hake. A shed where tiles are dried. (Standard) *See* Hack, 5.

Half-and-half. Solder made of equal parts of tin and lead. (Webster)

Half-and-half plane, or Half-end half-plane (Scot.). In a direction midway between plane course and end course (Barrowman). *See also* Half-course.

Half balk (Eng.). A mine prop cut into halves. *See also* Balk, 2. (G. C. Greenwell)

Half blinded (Scot.). Two ends driven off a plane, one on each side and not opposite each other by half their width. (Barrowman)

Half-bloom. A round mass of puddled iron before squeezing; a half-made bloom. (Standard)

Half-brilliant. A single-cut brilliant. (Standard)

Half-course. A drift or opening driven at an angle of about 45° to the strike and in the plane of the seam.

Half-edge seams (Scot.). Highly inclined seams; seams lying at an inclination of 1 in 1. (Barrowman)

Half-end (York.). *See* Horn coal, 1.

Half facet. In gem cutting, a skill-facet or cross-facet on a brilliant. (Standard)

Half-marrow (Newc.). Young boys, of whom two do the work of one loader. (Raymond)

Half mask. The part of a mine rescue, or oxygen-breathing apparatus which covers the nose and mouth only, and through which the wearer breathes the oxygen furnished by the apparatus.

Half-moon (Eng.). A scaffold nearly filling up one-half the sectional area of a shaft. (Gresley)

Half-pitch. Dipping or rising 18 inches to the yard. (Roy)

Half set. In mine timbering one leg piece and a collar. (Steel)

Half-turn socket. In oil-well drilling, a fishing tool having jaws bent around in an incomplete circle, to engage lost tools that lean to one side of the well. (Nat. Tube Co.)

Half work; Half wark (Eng.). When the day's work is half over, or when by reason of poor trade conditions, half-time is worked. (G. C. Greenwell)

Halite; Rock salt. Natural sodium chloride, NaCl. *See* Salt, 1. (U. S. Geol. Surv.)

Hallazgo (Sp.). Discovery of an ore deposit. (Halse)

Hälleflinta (Sweden). A dense, compact, metamorphic rock, consisting of microscopic quartz and feldspar crystals, with occasional phenocrysts and sometimes hornblende, chlorite, magnetite and hematite. It is associated with gneisses, but is of obscure origin. (Kemp)

Hällenflintoid. Of or resembling hälleflinte. (Century)

Hallett table. A table of the Wilfley type, except that the tops of the riffles are in the same plane as the cleaning planes and the riffles are sloped toward the wash-water side. (Liddell)

Hall furnace. A modification of the Wethey furnace for roasting sulphide ore. (Ingalls, p. 97)

Hallite. A yellow to green variety of mica, $H_{24}Mg_{12}(Al.Fe)_4Si_9O_{48}$, that crystallizes in the monoclinic system. (Standard)

Halloysite. A claylike, aluminum silicate, resembling kaolinite but amorphous and containing a larger but uncertain quantity of water, $2H_2O.Al_2O_3.2SiO_2+Aq$. (U. S. Geol. Surv.)

Hologen. In chemistry, any one of the elements bromine, chlorine, fluorine, and iodine (The radical cyanogen is also included by some chemists), which with the metals form compounds analogous in some respects to common salt. (La Forge)

Haloid. 1. In chemistry, of, pertaining to, containing, or resembling sea salt, sodium chloride. 2. Pertaining to, containing, or derived from one of the halogens. 3. A compound of one of the halogens with a metal: in this sense more properly spelled Halid or Halide. (La Forge)

Haloidite. Wadsworth's name for rock salt. (Kemp)

Halotrichite. Hydrous sulphate of iron and aluminum, $FeSO_4Al_2(SO_4)_3+24H_2O$, occurring in yellowish, silky fibrous forms. (Dana)

Haloxylin. A mixture of yellow prussiate of potash, niter, and charcoal, used as an explosive. (Century)

Halter (New Zealand). A miner working on his own account. (Anderson)

Halvanner (Corn.). A dresser of impure or inferior ore. (Davies)

Halvan ore. *See* Halvans.

Halvans; Halvings; Hanaways (Corn.). Ores much mixed with impurities. (Raymond)

Hambergite. A beryllium borate, $Be_2(OH)BO_3$, occuring in grayish-white, prismatic crystals. From Langesund fiord, southern Norway. (Dana)

Hamlinite. A basic phosphate of aluminum and strontium. In colorless rhombohedral crystals. Occurs with herderite, bertrandite, etc., at Stoneham, Me. (Standard)

Hammer. To make a noise as of blows in a pipe, the result of sudden stoppage of the flow, or of turning on steam; said of water. (Standard)

Hammer-and-plate. A signaling apparatus (Chance). A gong.

Hammer beam. A short beam projecting laterally from the inside of a wall, and serving as a tie beam. (Standard)

Hammer-dress. To dress or face stone with a hammer. (Webster)

Hammer-harden. To harden, as a metal, by hammering it while cold. (Webster)

Hammerman. 1. One who uses a hammer constantly in any metal-working trade. (Standard)
2. One who strikes with a hammer in hand drilling of holes for blasting.

Hammerpick. *See* Pollpick.

Hammer-refined. Designating steel the grain of which has been made finer and closer by heavy hammering followed by lighter and quicker blows at the finish. (Webster)

Hammer scale. Scale formed on hammering heated metal. (Webster)

Hammer slag. Anvil dross. (Webster)

Hammersmith. One who shapes or works metal with a hammer. (Standard)

Hammer tongs. Blacksmith's tongs having projecting lugs for engaging the holes of hammer heads or the like during forging. (Webster)

Hammer-wrought. Wrought with a hammer; said of ornamental ironwork. (Standard)

Hammochrysos. A mineral known to the ancients and characterized by gold-like spots. Probably a sand from yellowish mica schist. (Webster)

Hancock jig. A jig with movable sieve having both an up-and-down and a reciprocating motion. (Liddell)

Hand, or Handle (Eng.). To work a winding, pumping, hauling, or other engine. (Gresley)

Hand barrow. 1. A frame or flat barrow, without a wheel, carried by handles. 2. A kind of hand cart. (Webster)
3. A wheelbarrow. (Standard)

Handbrace. A tool used in boring by hand. (Standard)

Hand dog (Eng.). A kind of spanner or wrench for screwing up, or disconnecting, the joints of boring rods at the surface. (Gresley)

Hand-dug wells. The earliest known method of extracting petroleum was by means of pits dug by hand labor. The usual method was to dig a few feet and then allow the oil to collect at the bottom, whence it was subsequently collected by means of a suitable vessel. The deepest of these wells rarely exceeded 50 feet. (Mitzakis)

Handfarht (Ger.). The descent into a mine by ladders. (Davies)

Hand-fill (Eng.). To separate the small from the large coal in the mine, the latter being filled by the hand into the car, and the former thrown to the side of the working place, or filled separately as required. (G. C. Greenwell)

Hand-filled coal (Scot.). Lump coal which the miner loads by hand. (Barrowman)

Hand frame. An iron barrow used in a foundry. (Standard)

Handful (Brist. and Som.). A length of 4 inches. (Gresley)

Hand gear. 1. (Eng.) A small hand-cylinder for winding or hoisting from shallow work (Bainbridge). A windlass.
2. The mechanism for opening the valves of a steam engine by hand in starting. (Standard)

Hand hammer. Any hammer wielded by hand. A blacksmith's (or miner's) hammer used with one hand as distinguished from a heavier hammer or sledge. (Webster)

Handhole. A hole, as in a boiler, into which the hand may be inserted. (Standard)

Hand hook. An implement for twisting iron bars. (Standard)

Hand level. A small instrument consisting of a telescope with a bubble tube so attached that the position of the bubble can be seen when looking through the telescope. (Webster)

Handling (Mid.). Reloading coal underground from one car to another. (Gresley)

Hand-picked coal. Coal from which all stones and inferior coal have been picked out by hand: large lumps. (Barrowman)

Hand screw. A jackscrew. (Standard)

Hand specimen. A piece of rock trimmed to a size, usually 1 by 3 by 4 inches, for megascopic study and for preservation in a working collection. (La Forge)

Handspike. 1. A wooden lever for working a capstan or windlass. (C. and M. M. P.)
2. A bar used as a lever in lifting weights or overcoming resistance; a heaver. (Standard)

Hand whip. A counterpoised sweep for raising water from shallow pits. A shadoof. (Webster)

Handyman. At small plants, a Jack-of-all-trades, as a rigger, millwright, and machinist combined (Willcox). A man employed to do various kinds of work.

Hang. 1. (Brist.) The hade of a fault. (Gresley)
2. To have its charge choked up or arched in one part, while the part underneath falls away so as to leave a gap; said of a blast furnace. (Webster)

Hang-bench (Eng.). A support for a windlass. (Bainbridge)

Hanger. 1. (Scot.) The hook of a miner's lamp. (Barrowman)
2. (Corn.) The hanging wall. (Duryee)
3. That which hangs, overhangs, or is suspended. (Webster)
4. *See* Hanging bolts.
5. A frame containing a bearing for a shafting. (Standard)

Hanger-on (Eng.). The man who runs the full trams upon the cages and gives the signals to hoist (Gresley). *See also* Cager, 1.

Hangfire. Said of a charge that explodes later than expected. A hangfire rarely occurs with electric firing, but it is not infrequent with blasting cap and fuse. (Du Pont)

Hanging. 1. The hanging wall; the rock on the upper side of a mineral vein or deposit (Weed). *See* Hanger, 2.
2. Sticking or wedging of part of the charge in a blast furnace (Willcox). *See* Hang, 2.

Hanging bolts. Rods made of 1⅛ or 1¼ inch round iron, by which the wall plates are suspended while being placed in position in the shaft. Sometimes called Hangers.

Hanging coal. A portion of the coal seam which, by under cutting, has had its natural support removed. (Raymond)

Hanging deal (Aust.). Planks used to suspend a lower curb from the one above it, in cases where backing deals are necessary. (Power)

Hanging glacier. A glacier of small size on so steep a slope that the ice breaks off and falls from its lower end. (Century)

Hanging guide. *See* Guides, 3.

Hanging its water (Scot.). The bucket failing to pump on account of a faulty valve, or air between the bucket and the valve, the column of water above the bucket being sufficient to prevent the opening of the bucket lids, is said to hang its water. (Barrowman)

Hanging-on (Eng.). The pit bottom, level, or inset, at which the cages are loaded. (Gresley)

Hanging scaffold (Scot.). A movable platform in a shaft attached to a winding rope. (Barrowman)

Hanging sets (Scot.). Timbers from which cribs are suspended in working through soft strata. (Barrowman)

Hanging side; Hanging wall; Hanger. The wall or side above the ore body. (Winchell)

Hanging spear-rods (Eng.). Adjustable wooden pump rods, by which a sinking pump is suspended in a shaft. (Gresley)

Hanging tie. A tie, as in a floor, the end of which is upheld by a strap, connecting it with a beam above. (Standard)

Hanging valley. A valley the floor of which is notably higher than the level of the valley or shore to which it leads.

Hanging valve. 1. A rotary-engine valve which is hinged and falls by gravity so as to form an abutment, but is lifted by the passing piston. 2. A clack valve or flap valve. (Standard)

Hanging wall. The upper wall of an inclined vein, or that which hangs over the miner at work. (Webster)

Hangklip (So. Afr.). An overhanging cliff. (Standard)

Hanksite. A mineral having the following composition, $9Na_2SO_4,2Na_2CO_3,KCl$, occurring in hexagonal prisms, short prismatic to tabular; also in quartzoids. Color. white to yellow. From California. (Dana)

Hapire (Peru). A trammer; a laborer who assists a miner, and who carries ore on his back or shoulders. In Peru the load is 50 to 75 pounds, while in Chile as much as 200 pounds are carried in a leather bag at one time. (Halse)

Haplite. A name proposed by L. Fletcher for that variety of granite which consists of quartz and potash feldspar. The name is derived from the Greek for simple. *Compare* Binary granite. (Kemp)

Harbor. In glass making, a large chest for holding materials before fusion. (Standard)

Hard. 1. Containing certain mineral salts in solution, especially calcium carbonate; said of water having more than eight or ten grains of such matter to the gallon. 2. In ceramics, requiring great heat: said of muffle-colors in porcelain decoration. (Standard)

Hard coal. Same as Anthracite.

Hard drawn. Drawn while cold; said of wire. (Standard)

Hardened steel. Steel that has been hardened by quenching from or above the hardening temperature. (Hibbard)

Hardening-kiln. A kiln in which, in the transfer printing process, unfinished pottery is exposed to a low heat to drive away superfluous oil. (Century)

Hard head. 1. A residual alloy, containing much iron, arsenic and tin, produced in the refining of tin. (Raymond)
2. A hard knob or knot formed by extreme cementation of sandstone in certain spots. (Bowles)
3. A large, smooth, rounded stone found especially in coarse gravel (Century). A nigger head.

Hard heading (Eng.). A heading, tunnel, or drift driven in stone. (Gresley)

Hardinge mill. A tube mill made with two conical sections connected by a central very short cylinder. The cone at the feed end is very short so that the large pebbles settle and grind at the large end where the feed is coarse. (Liddell)

Hard lead. Lead containing certain impurities, principally antimony. (Raymond)

Hard metal. An alloy of about two parts copper with one of tin, prepared in the process of making gun metal. (Century)

Hardness. The cohesion of the particles on the surface of a body (as a mineral) as determined by its capacity to scratch another, or be itself scratched. (Webster) The hardness of a mineral is relatively constant. For convenience, all minerals are referred to a scale of hardness of ten units composed of common or well known minerals (*see* Hardness scale). The degree of hardness is expressed by the number of the mineral in the scale, and minerals of intermediate hardness are expressed by fractions. (Buckley)

Hardness scale. The scale by which the hardness of a mineral is determined as compared with a standard. The Mohs scale is as follows: 1. Talc; 2. Gypsum; 3. Calcite; 4. Fluorite; 5. Apatite; 6. Orthoclase; 7. Quartz; 8. Topaz; 9. Sapphire; 10. Diamond. (Dana)

Hard pale solder. An alloy of tin 2 parts, lead 1 part: for pewterers' use. (Standard)

Hardpan. A name specially developed in the digging of auriferous placers, and applied to the layers of gravel which are usually present a few feet below the surface and which are cemented by limonite or some similar bond. They are therefore resistant. It is also used to describe bowlder clay, which is likewise difficult to excavate. (Kemp)

Hard porcelain. Porcelain characterized by a body of kaolin and feldspar with a feldspathic glaze, as Chinese, Sèvres, Berlin, etc., porcelain. (Standard)

Hard pottery. Pottery which can not be scratched by a sharp-pointed piece of iron. (Standard)

Hard-rock phosphate. A term used in Florida to designate a hard, massive, close-textured, homogenous, light-gray phosphate, showing larger or smaller irregular cavities, that are usually lined with secondary mammilliary incrustations of phosphate of lime. (Power)

Hards (Mid.). A hard and close-grained coal. (Gresley)

Hard solder. Any solder that melts only at a red heat: used in soldering silver, etc. (Standard)

Hard spar. A name applied both to corundum and andalusite. (Chester)

Hard steel. Steel containing more than 0.30 per cent of carbon. Employed for rubbing surfaces and where great ultimate strength is required (Webster). *See also* Steel.

Hard way, or Head grain. A plane at right angles to both rift and run, along which the rock splits with greater difficulty than in directions of either rift or run (Bowles). Sometimes called Cut-off.

Hard white ore. Georgia bauxite containing less than 1 per cent ferric oxide. (Ore Dep., p. 406)

Hardy. A square-shanked chisel or fuller for insertion in a hardy hole. (Standard)

Hardy hole. A hole in a blacksmith's anvil for the insertion of a calking tool or other piece. (Standard)

Haricot. Red copper oxide (CuO) used as a back ground in ceramic decoration (Standard). Also spelled Harrico.

Harina (Sp.). 1. Flour; *H. fósil*, infusorial earth. 2. Fine powder of metals; *H. del bocarte*, pulp at gold-extraction mills. (Halse)

Harlequin. The Oriental opal. (Standard)

Harneado (Chile). Screening, as of ore; *Harneadoras de carbón*, a coal-screening apparatus. (Halse)

Harnear (Sp.). To screen, as in ore dressing. (Halse)

Harnererо (Mex.). The operator of a hand-jig. (Dwight)

Harnero (Mex.). Hand-jig (Dwight) A sieve; a screen. (Halse)

Harp. 1. (Scot.). A sparred shovel used in the east of Scotland for filling coal. (Barrowman)
2. (Scot.) To fill a hutch with coal at the face. (Gresley)

Harrie; Herrie (Scot.). To rob; to take all the coal that can conveniently be mined without attempting to systematically remove the whole (Barrowman). A variation of Harry, to strip; despoil; to rob.

Harrisite. A variety of chalcocite that is pseudomorphous after galena. (Standard)

Harrow (Aust.). An apparatus used for mixing gold-bearing clays. (Skinner)

Harstigite. An acid orthosilicate of manganese and calcium. The mineral occurs in small, colorless, prismatic crystals. From Sweden. (Dana)

Hartine. A white resin separated by ethyl ether from a resin from the brown coal of Oberhart. *See also* Xyloretinite. (Bacon)

Hartite. A mineral closely resembling fictellite; it melts at 75° C., and occurs near Gloggnitz, Austria, and in Styria and Carinthia. (Bacon)

Harvard brick. A term originally applied to clear, red, common brick, which were overburned, and especially so on one end or side, so that these harder burned parts were bluish black. The name is more loosely used nowadays. (Ries)

Harveyize. To subject the face of a steel plate to a process of cementation which increases the carbon in that portion of the plate, producing a plate with a comparatively soft body and a very hard face. (Century)

Harvey process. A process for carburizing the face of a piece of low-carbon steel by subjecting it to the action of carbon at a very high heat, and then a sudden chilling, as by a spray of cold water. (Webster)

Harz, or plain eccentric jig. A jig in which pulsion is given intermittently with suction. The periods devoted to them are about equal. (Liddell)

Harzburgite. A variety of peridotite that consists essentially of olivine and enstatite or bronzite. Saxonite was earlier proposed by Wadsworth (1884) for the same rock, and has priority. (Kemp)

Hasenclever furnace. 1. A vertical shaft furnace for calcining sulphide ore. (Peters, p. 172)
2. A simple, efficient muffle furnace for roasting zinc ores in Upper Silesia. (Ingalls, p. 131)

Hasenclever-Helbig furnace. A roasting furnace having a hearth inclined at an angle of 43°. The ore descends over the hearth by gravity. (Ingalls, p. 136)

Haspel (Sp. Am.). A hand winch. (Lucas)

Hassing. *See* Hasson.

Hasson; Hassing (Scot.). A vertical gutter between water rings in a shaft (Barrowman). *See also* Gauton.

Hasson deal (Scot.). A cover for a hasson. (Barrowman)

Hastial (Sp.). 1. The surface of either wall, or roof, or floor of a deposit; side of a deposit. 2. The side of a gallery, shaft, or any excavation. (Halse)

Hatajo (Mex.). A drove of pack-mules. (Dwight)

Hatch. 1. (Brist.) A door, or gate.
2. A stroke or line used in engraving or drawing to give the effect of shading. (Webster)

Hatchet stake. A small anvil on which to bend sheet metal. (Standard)

Hatchettine. A synonym for Hatchettite. (Bacon)

Hatchettite. A yellowish-white, wax-yellow or greenish-yellow hydrocarbon which darkens on exposure; it melts at 46° C., is sparingly soluble in boiling alcohol and cold ether, and is decomposed by concentrated sulphuric acid. Its specific gravity varies from 0.892 to 0.983. (Bacon)

Hatchettolite. A tantalo-niobate of uranium, near pyrochlore. In octahedrons. Color yellowish brown. Occurs with samarskite, at the mica mines of Mitchell County, North Carolina. (Dana)

Hatching (Brist.). An underground way or self-acting inclined plane, in a thin seam of coal, extending from 60 to 80 yards to the rise. (Gresley)

Hatherlite. A name proposed by A. Henderson for a syenite from South Africa which has for its feldspar anorthoclase instead of orthoclase. Pilandite is a porphyritic phase of the same. (Kemp)

Hat rollers (Eng.). Cast iron or steel rollers, shaped like a hat, revolving upon a vertical pin, for guiding haulage ropes around curves. (Gresley)

Hatter (Aust.). A miner or other worker who works alone, and therefore whose "hat covers his family." (Webster)

Hatting (Aust.). The labor of a miner who works alone. (Standard)

Haud off; Hold off (Scot.). Keep back. Called by a laborer pushing a full car to another meeting him with an empty one, the latter being obliged to get out of the way. (G. C. Greenwell)

Hauerite. Manganese disulphide, MnS_2. In octahedral of pyritohedral crystals; also massive. Color reddish-brown or brownish-black. (Dana)

Haul. 1. To transport by pulling or drawing, as cars. 2. The distance over which anything is hauled as. a long or a short *haul.* (Standard)

Haulage. The act or labor of hauling or drawing. In mining, the drawing or conveying, in cars or otherwise, of the produce of the mine from the place where it is mined to the place where it is to be hoisted, treated, used, or stored.

Haulage clip (Eng.). Levers, jaws, wedges, etc., by which trams, singly or in trains, are connected to the haulage ropes. (Gresley)

Haulage plant. A mechanical installation for the tramming of rock (ore or coal), operated by ropes, compressed air, or electricity. (Weed)

Haulageway. The gangway, entry, or tunnel through which loaded or empty mine cars are hauled by animal or mechanical power.

Hauler. Same as Driver.

Haulier (Fr.). A boy or man who goes with a pony or horse in the mine, or who attends the trips upon engine planes, etc. (Gresley). A driver.

Haunch. The part of an arch from the keystone to the skew back. (C. and M. M. P.)

Haupt furnace. A gas-fired Silesian furnace with recuperative chambers for preheating the air for secondary combustion. (Ingalls, p. 409)

Haurl (Scot.). A claut; a scraper. (Barrowman)

Hausmannite. A mineral, Mn_3O_4 or $MnO.Mn_2O_3$. In tetragonal octahedrons and twins; also granular massive, particles strongly coherent. Luster submetallic. Color brownish black. (Dana)

Haüynite; Haüyne. A silicate and sulphate of sodium, calcium, and aluminum. $Na_2Ca(NaSO_4.Al)Al_2(SiO_4)_3$. (Dana)

The name of the mineral is often prefixed to the names of those rocks that contain it. (Kemp)

Hauzeur furnace. A double furnace for the distillation of zinc wherein waste heat from one set of retorts is utilized for heating the second set. (Ingalls, p. 443)

Hawk's eye. A blue variety of crocidolite from South Africa (Power). *See also* Tiger-eye, 1.

Hawser. 1. Any wire rope used for towing on lake or sea. A fiber hawser consists of three strands laid up right-handed. (C. M. P.)

2. A large rope, 5 to 10 inches in circumference, generally of 9 strands and left-handed twist. (Standard)

Hawser-laid rope. A rope having three strands of yarn twisted left-handed, the yarns being laid up right-handed. Synonymous with cable-laid rope as applied to wire ropes. (C. M. P.)

Hawser wire rope. Galvanized rope of iron or steel, usually composed of 6 strands, 12 wires each, principally used in marine work for towing purposes. (C. M. P.)

Hayden process. An electrolytic process for copper refining. There is but one true cathode and one anode in the tank, a large number of plates of unrefined copper being placed between and parallel to them. The side of each plate toward the cathode then acts as an anode, while copper is deposited on the side of each plate toward the anode, until the entire plate has moved over by the amount of its own thickness. This is the so-called series method of refining. (Liddell)

Hazle (No. of Eng.). In coal mining, a tough mixture of sandstone and shale (Gresley). Also spelled Hazel.

Head. 1. Any road, level, or other subterraneous passage driven or formed in the solid coal, etc., for the purpose of proving and working the mine. 2. That part of a face nearest to the roof. 3. (Som.) Any length of working faces. 4. (So. Staff.) A shift or day's work by the stint in heading-out, or driving of deadwork. 5. The top end of the boring rods above the surface. 6. Pressure of water in pounds per square inch, or, of so many feet. 7. To cut or otherwise form a narrow passage or head. 8. A lift. 9. *See* Motive column. (Gresley)
10. In the plural, the purest ore obtained by washing; distinguished from middling, tailing, and slime, that are also used in the plural form.
11. The circular plate that forms the end of a cylinder of a steam engine. (Crofutt)
12. *See* Sluice head. 13. The attitude or direction of the set of parallel planes in a massive crystalline rock along which fracture is most difficult. It is normal to the direction of the strongest cohesion. 14. A rammer for crushing gold quartz.
15. (Eng.) An earthy deposit from rock decay. (Webster)
16. A layer of angular débris of adjacent strata, which generally overlies the raised beaches of England. (Standard)

Head-bay. The water space immediately above the lock in a canal. (Century)

Headblock. 1. A stop at the head of a slope or shaft to stop cars from going down the shaft or slope. 2. A cap piece. (Steel)

Headboard. A wedge of wood placed against the hanging wall, and against which one end of the stull is jammed. (C. and M. M. P.)

Head coal (Scot.). Formerly, the stratum of a coal next the roof. More usually now, the top portion of a coal seam when left unworked, either permanently or to be afterwards taken down; the top coal on a loaded wagon. (Barrowman)

Header. 1. A rock that heads off or delays progress. 2. A blast hole at or above the head. 3. A stone or brick laid lengthwise at right angles to the face of the masonry. 4. An entry-boring machine that bores the entire section of the entry in one operation. (Reis)
5. (Mid.). A collier or coal cutter who drives a heading. (Gresley)
6. A plank or timber, longer than a cap, supported by two props, one at each end. (Big Branch Coal Co. *v.* Wrenchie, 170 S. W. Rept., p. 16)

Headframe. A structure erected over a shaft to carry the sheaves over which the cable runs for hoisting the cage. Called in England, Gallows frame. (Chance)

Head gate. A water gate or floodgate of any race or sluice. (Standard)

Headgear. 1. That portion of the winding machinery attached to the headframe, or the headframe and its auxiliary machinery. (Chance)
2. That part of deep-boring apparatus which remains at the surface. (Raymond)

Head grain. Same as Hard way. (Bowles)

Head house. The house or building that encloses the headframe. *See also* Gallows frame. (Chance)

Heading. 1. The vein above a drift. *See* Back, 1. 2. An interior level or airway driven in a mine. 3. In longwall workings, a narrow passage driven upward from a gangway in starting a working in order to give a loose end. (Raymond)
4. A continuous passage between two rooms, breasts, or other working places. 5. (Ark.). The narrow part of an entry near the working face. (Steel)
6. The operation of driving a head.
7. (Scot.). The top portion of the load above the tub (car) sides. (Gresley)
8. A collection of close joints. (Perkins)
9. A term sometimes applied to the preliminary drift or pioneer bench in tunnel driving. (Bowles)

Heading-and-stall. *See* Room-and-pillar method.

Heading driver; Entryman. A miner who drives a heading, entry, drift, or adit.

Headings. 1. In ore dressing, the heavier portions collecting at the upper end of a buddle or sluice, as opposed to the tailings, which escape at the other end, and the middlings, which receive further treatment (Raymond). Also called Concentrates. *See* Head, 10.
2. Coarse gravel or drift overlying placer deposits. 3. That portion of a vein which is above a level. (Power)

Heading seam. *See* Joint, 3.

Heading side. The underside of a lode (Davies). *See* Heading wall.

Heading tool. A tool for swaging bolt heads. (Standard)

Heading wall. The foot wall or lower wall of a lode along which the heading is run. (Skinner)

Headline. A line extending from the front of a dredge to an anchorage and used to hold the dredge in place during operations. *See also* Side line, 1. (Weatherbe)

Headpiece. A cap; a collar. (Chance)

Headrace. The channel by which water is led to a water wheel, or to any machinery. (Standard)

Headroom. Height as between the floor and the roof, as in a mine. (Gresley)

Heads. 1. (N. Y. and Pa.). A local term applied by bluestone quarrymen to the open joints that run north and south. (Bowles)
2. (Eng.). *See* Headings, 1. *Also* Head, 10.
3. (Scot.). Large top-coal on a loaded hutch. (Barrowman)
4. (Aust.). Small faults. (Power)

Head side (No. Staff.). The rise side of a heading driven on the strike. (Gresley.)

Headsman (No. of Eng.). In a colliery, one who brings coal from the workings to the tramway. (Webster)

Head stocks. Gallows frame; headframe. (Chance)

Headsword (Corn.). Water discharged through the adit level. (Davies)

Head tin (Corn.). *See* Headings, 1.

Headtree (Newc.). A piece of wood, on top of a prop, to support the roof. (Min. Jour.)

Headwater erosion. The extension of a stream valley by erosion of the upland at its head. (Webster)

Headway (Newc.). 1. *See* Crosshead-ing. The headways are the second set of excavations in post-and-stall work. (Raymond)
2. (No. of Eng.). The direction of the cleat or a place driven parallel with the cleat, that is, end-on. (Gresley)

Headwork. 1. The headframe with the head gear. (Webster)
2. (Ark.) The cutting and other work done at the face of an entry. (Steel)

Healing stone. A slate or tile for roofing. (Standard)

Heap. 1. (Newc.) The refuse at the pit's mouth. (Raymond)
2. (Scot.) To load up a tub (car) above the top of the sides. (Gresley)

Heap keeper (No. of Eng.). A man who looks after the sorting and cleaning of the coal at the surface, and keeps things in order about the shaft.

Heap matte. Matte produced by heap roasting.

Heap roasting. Burning the sulphur out of ores piled in heaps, with a small amount of wood or other fuel. (Weed)

Heapstead (Eng.). The entire surface works about a colliery shaft. (Gresley)

Hearth. 1. The floor or sole of a reverberatory. 2. The crucible of a blast furnace. (Raymond)
3. A bloomery. 4. A plate or table upon which cylinder glass is flattened. (Standard)

Hearth accretions. *See* Sow, 4.

Hearth bottom. A furnace bottom soaked to some depth with metal. (Hofman, p. 85)

Hearth cinder. Slag produced in refining metals. (Webster)

Hearth ends. Particles of unreduced lead ore expelled by the blast from a furnace. (Raymond)

Hearth plate. A cast-iron plate serving as a sole for a refiner's furnace. (Standard)

Heart joint (Scot.). A particular form of attachment joint between the bucket-rod and the foot-rod of a pump. (Barrowman)

Heart shake. A defective condition of timber shown by cracks extending from the heart outward. (Standard)

Heart wall. A wall hearted with rubble, concrete, or other filling. (Webster)

Heat. **1.** A physical agent or form of energy generated by the transformation of some other form of energy, as by combustion, chemical action, or the stoppage of mass-motion by friction, possessing the power of expanding, melting, vaporizing, and decomposing bodies, of raising their temperature, and of passing through space with the velocity of light. **2.** The material heated, melted, etc., at one time; as, the foundry runs three *heats* a day. (Standard) **3.** One operation in a heating furnace, Bessemer converter, puddling furnace, or other furnace not operating continuously. (Raymond) **4.** (Eng.) The elevated temperature produced by spontaneous combustion in a mine. (Gresley)

Heat economizer. A device by which the steam in a steam engine or the hot air of an engine is cooled, causing it to impart its heat to a metallic body which stores up the heat and imparts it in turn to the next charge of steam or air, thus reducing the waste of heat; a regenerator. (Century)

Heat energy. That form of energy which manifests itself through thermal effects. (Webster)

Heat engine. An engine which transforms heat into mechanical work. (Century)

Heater. One of the workmen who assists in the operation of rolling large steel armor plates. (Standard)

Heathen (Eng.). Applied to a bed of coal immediately below the 10-yard coal, Staffordshire. (Bainbridge)

Heath peat. Peat derived chiefly from decomposed heather. (Standard)

Heating back. A chamber back of a forge, in which the air intended for the blast is heated. (Standard)

Heating furnace. The furnace in which blooms or piles are heated before hammering or rolling. (Raymond)

Heating surface. That surface in a steam boiler or similar apparatus from which the heat passes to the liquid to be evaporated or heated; the fire surface. (Standard)

Heat of combustion. The heat evolved when a substance is completely burned in oxygen.

Heating tube. A water tube exposed to the fire in a steam boiler. (Standard)

Heat recuperation. The recovery of heat from waste gases. (Ingalls, p. 355)

Heat unit. A unit of quantity of heat; the heat required to raise the unit mass of water through one degree of temperature (Standard). *Compare* Calorie; *also* British thermal unit.

Heave. **1.** The horizontal component of the slip, measured at right angles to the strike of the fault. Used by J. E. Spurr and A. Geikie for "offset." Used by Jukes Brown for "strike slip." (Lindgren, p. 123) **2.** A rising of the floor of a mine caused by its being too soft to resist the weight on the pillars. (Steel)

Heavily watered (Scot.). Said of a colliery when the escape of water from the strata into the shaft or workings is abundant, requiring powerful pumping machinery. (Barrowman)

Heavy. The hollow sound produced when knocking on a mine roof, which is loose. (Gresley)

Heavy fire (No. of Eng.). An extensive and severe explosion. (Gresley)

Heavy gold (Aust.). Particles of gold the size of gunshots. (Davies)

Heavy spar. Synonym for Barite.

Heavy tiff. *See* Tiff, 2.

Hebilla (Sp.). A buckle. (Halse)

Hebrew granite (Eng.). A graphic granite in which the crystals of quartz imbedded in the body of the feldspar resemble Hebrew characters. (Roberts)

Hechado (Sp.). The dip of a lode. (Lucas)

Hectare. A measure of area equal to 2.4711 acres.

Hedenbergite. A calcium-iron variety of pyroxene, $CaFe(SiO_3)_2$. (Dana)

Hedgehog. 1. (Scot.) A broken strand or single wire of a rope torn out while the rope is in motion, and drawn up into a knot or bundle on the rope. (Barrowman)
2. A dredger consisting of a roller with protruding spikes or spades which is dragged over the bottom of a river, etc., to remove silt, mud, or the like. (Webster)

Hedgehog stone. Quartz crystals containing needles of göthite or some other iron oxide (Chester). *Compare* Hair stone.

Hedrumite. A name proposed by Brögger for certain syenitic rocks that are poor or lacking in nephelite, but that have a trachytic texture. (Kemp)

Heel. The mouth or collar of a bore hole. (Du Pont)

Heel of a shot. In blasting, the front of a shot, or the face of the shot farthest from the charge (C. and M. M. P.). Same as Heel.

Heel of coal. A small body of coal left under a larger body as a support. (Steel)

Heepstead (Eng.). *See* Heapstead.

Hegeler furnace. A muffle furnace 7 hearths high. The lower hearths are heated by gas burned in the flues beneath them. The first mechanical furnace to be employed successfully for blende roasting in the United States, at La Salle, Ill. (Ingalls, pp. 145 and 450)

Hegeler producer. A furnace for the manufacture of producer gas. (Ingalls, p. 307.)

Height-of-land. *See* Watershed.

Heintzite; Hintzeite; Kaliborite. A hydrous borate of magnesium and potassium. The mineral occurs in small crystals sometimes aggregated. Colorless to white. From Stassfurt. (Dana)

Helenite. A wax near ozocerite but elastic like caoutchouc; it is yellow and has a specific gravity of 0.915. It occurs at Ropa in Galicia. (Bacon)

Helictite. A distorted twig-like lateral projection of calcium carbonate, found in caves, etc. (Standard). *Compare* Stalactite; Stalagmite.

Heliotrope. A subspecies of quartz, of a deep-green color, peculiarly pleasant to the eye. Also called Bloodstone. (Century)

Helium. An inert, monatomic, gaseous element occurring in the atmosphere of the sun and stars, and in small quantities in the earth's atmosphere, in several minerals and in certain mineral waters. Symbol, He; atomic weight, 4.0; specific gravity, 0.12. (Webster)

Helper. A miner's assistant, who works under the direction of the miner. (Hargis)

Helper-up (Aust.). An assistant to a trammer when the roads are bad. (Power)

Helve. 1. (Eng.) The handle of a pick or maundrill (Gresley). Sometimes called Helver.
2. A lift-hammer for forging blooms. (Raymond)

Helvite. A mineral occurring commonly in tetrahedral crystals; also in spherical masses. Brittle; luster vitreous, inclining to resinous. Color honey-yellow, inclining to yellowish brown, and siskin green, reddish brown. Composition, $(Be, Mo, Fe)_7Si_3O_{12}S$. (Dana)

Hemachate. A light-colored agate spotted with red jasper. Also called Blood-agate. (Standard)

Hematita (Sp.). Hematite. (Dwight)

Hematite. One of the commonest ores of iron, Fe_2O_3, which when pure contains about 70 per cent of metallic iron and 30 of oxygen. It may be readily distinguished from magnetic and titaniferous iron ore by its red streak and powder, the others giving a black streak. Hematite is sometimes mixed with sufficient magnetite to cause it to adhere to the magnet. The hydrated variety of this ore is called limonite or brown hematite. (Roy. Com.)

Hematitic. Pertaining to, containing, or resembling hematite. (Century)

Hembra (Mex.). A post (timbering). (Dwight)

Hemidome. That form in a crystal composed of two parallel domatic planes in the triclinic, or of two parallel orthodomatic planes in the monoclinic system of crystallization. (Standard)

Hemihedral. In crystallography, having a lower grade of symmetry than, and only half as many faces as, the corresponding form of full or normal symmetry for the system. (La Forge)

Hemiholohedral. Noting hemihedrons in which all the octants contain half the whole number of similar planes. (Standard)

Hemimorphic. In crystallography, having no transverse plane of symmetry and no center of symmetry, and composed of forms belonging to only one end of the axis of symmetry. (La Forge)

Hemimorphite. A hydrous zinc silicate, H_2ZnSiO_5 (Dana). *Compare* Calamine.

Hemiprism. A form produced by two parallel planes cutting the two lateral axes in the triclinic system of crystallization. (Standard)

Hemipyramid. A form consisting of two pairs of similar parallel planes cutting all three axes in the monoclinic system of crystallization. (Standard)

Hemithrene. Brogniart's name, current among the French, for certain dioritic rocks that contain a large amount of calcite, presumably an alteration product. (Kemp)

Hemitropic. Crystals that appear as if composed of two halves of a crystal turned partly round and united. Examples of this structure may be often found in feldspar and cassiterite crystals. (Jackson)

Henderson process. The treatment of copper sulphide ores by roasting with salt, to form chlorides, which are then leached out and precipitated. Henderson originally proposed to volatilize the chlorides, and the leaching and precipitation are not original with him. Longmaid and many other metallurgists have proposed them in various modifications. (Raymond)

Hepatic cinnabar. A variety of cinnabar of a liver-brown color. (Webster)

Hepatic gas. An old chemical term for hydrogen sulphide. (Webster)

Hepatic mercurial ore. *See* Hepatic cinnabar.

Hepatic pyrite. Marcasite. (Power)

Hepatin. An amorphous limonite, of a liver-brown color, and containing a small percentage of copper. (Chester)

Hepatite. A variety of barite: so called from the fetid odor it exhales when heated. (Standard)

Hercules powder. An explosive that resembles dynamite No. 2, and consists of nitroglycerin with a more or less explosive dope. (Raymond)

Hercules stone. The lodestone. Called also Heraclean stone; Heraklean stone. (Standard)

Hercynite. Iron spinel, $FeAl_2O_4$. Isometric; a massive, fine granular black mineral. (Dana)

Hermetic casing. *See* Screw casing.

Heronite. A name proposed by A. P. Coleman, for a dike rock, consisting essentially of analcite, orthoclase, plagioclase and aëgirite, the analcite having the character of a base, in which the other minerals form radiating groups of crystals. The name is derived from the locality, Heron Bay, on the north shore of Lake Superior. (Kemp)

Herramienta (Mex.). Tools; equipment. In Guanajuato used instead of *Parada*. (Dwight)

Herrar (Sp.). To shoe horses. (Halse)

Herrería (Sp.). 1. A blacksmith's shop. 2. Ironworks. 3. A forge. (Halse)

Herrero (Sp.). Blacksmith. (Dwight)

Herreshoff furnace. 1. A rectangular-shaft blast furnace for smelting copper ore. (Peters, p. 287)
2. A mechanical, cylindrical, multiple-deck, muffle furnace of the McDougall type. (Ingalls, p. 152)

Herringbone. 1. Resembling the spine of a herring, characterized by the arrangement of materials in rows of parallel lines, which in any two successive rows slope in reverse directions. 2. A gear with double-screw teeth. (Webster)

Herringbone work. 1. Masonry in which the stones are laid slanting in opposite directions in alternate courses. 2. An arrangement of diagonal struts in X forms between joists to communicate strength from one joist to its neighbors. (Standard)

Hervezón (Colom.). Alluvium mixed with poor sands or superficial earth. (Halse)

Hervidero (Sp.). 1. A boiling spring. 2. A mud volcano. (Halse)

Hervir (Sp.). To boil. (Dwight)

Hess (So. Staff.). Clinker from furnace boilers. (Gresley)

Hessite. A silver telluride mineral, Ag_2Te. Contains 63.3 per cent silver. (U. S. Geol. Surv.)

Hessonite. A variety of garnet; Cinnamon stone. (Century)

Heterogeneous. Differing in kind; having unlike qualities; possessed of different characteristics; opposed to homogeneous. (Webster)

Heterotactous. Irregular; lacking uniformity in stratification or arrangement of parts; heterogeneously arranged. (Standard)

Heterotomous. Having a cleavage unlike that which is characteristic of the mineral in its ordinary form, as a variety of feldspar. (Standard)

Heugh (Scot.). 1. A place where coal or other mineral is worked; a pit or shaft. (Barrowman)
2. A gem with rugged sides; a crag (Standard). *Also* spelled Heuch.

Heulandite. A mineral of the zeolite family. A hydrous silicate of calcium and aluminum, $5H_2O.CaO.Al_2O_3.6SiO_2$. (Dana)

Heumite. A name proposed by W. C. Brögger for a dike rock, composed of minerals, too small to be recognized with the eye alone, but which under the microscope prove to be natron-orthoclase, natron-microcline, barkevicite, biotite, and in small amount, nephelite, sodalite, and diopside. The accessories are apatite, magnetite, pyrite, and titanite. The silica in two dikes was found to be respectively 47.10 and 48.46. The name was derived from Heum, a small town on Lake Farris. (Kemp)

Hewer (Newc.). One who undercuts the coal with a pick. A coal miner.

Hewing (Newc.). Undercutting or mining the coal. (Min. Jour.)

Hewing double (Eng.). *See* Double-working. (G. C. Greenwell)

Hewing rate (Aust.). The rate of pay given miners for mining coal. (Power)

Hewns (Eng.). The sides of a calciner or roasting furnace, from their being formerly built with hewn stone. (Pryce)

Hexagonal system. In crystallography, that system of crystals in which the faces are referred to four axes, a principal or vertical axis and three lateral axes perpendicular to the vertical axis and intersecting at mutual angles of 60°. (La Forge)

Hexahedron. In crystallography, a form, in the isometric system, enclosed by six faces each perpendicular to an axis; a cube. (La Forge)

Hexoctahedron. In crystallography, a form, in the isometric system, enclosed by 48 similar faces with unequal intercepts on all three axes. (La Forge)

Hextetrahedron; Hexatetrahedron. In crystallography, a form, in the isometric system, of tetrahedral symmetry, enclosed by 24 similar faces with unequal intercepts on all three axes. (La Force)

Hiatal. A rock fabric in which the variation in the size of the crystals is not in continuous series, but in a broken series with hiatuses. (Iddings, Igneous Rocks, p. 198)

Hiatus. A chasm; a gap; a space where something is wanting. (Webster)

Hichú (Peru). A species of long grass used as fuel or fodder. (Dwight)

Hick-joint. A system of masonry-pointing in which the mortar between the courses is flush with the face of the wall. (Standard)

Hiddenite. An emerald-green spodumene. Used as a gem. (U. S. Geol. Surv.)

Hidráulica (Sp.). Hydraulic. (Dwight)

Hidrografía (Mex.). Hydrography. (Dwight)

Hielmite. A stanno-tantalate (and niobate) of yttrium, iron, manganese, calcium. Crystals (orthorhombic), usually rough; massive. Color pure black. From Sweden. (Dana)

Hierro (Sp.). 1. Iron; *H. afinado*, refined iron; *H. cochino*, pig iron; *H. colado*, cast iron. 2. Iron ore; *H. arcilloso*, clay ironstone; *H. arsenical*, arsenopyrite; *H. especular*, specular iron ore; *H. cromado*, chrome iron ore (Lucas). *H. labrado*, wrought iron (Min. Jour.); *H. limoso*, bog ore; limonite; *H. magnético*, magnetite; *H. pardo*, brown iron ore; *H. rojo*, hematite; *H. viejo*. (Peru) Silver ores consisting mainly of iron oxide. (Halse)

Higado (Peru). 1. An oxide of iron, occurring in small isolated masses, containing minute particles of gold. 2. A lenticular deposit of gold ore. (Halse)

High. A miner's name for the coal of a thick seam. (Steel)

High doors (Scot.). An upper landing in a shaft. (Barrowman)

High explosives. Explosives which detonate or are composed of ingredients which detonate. In the United States the designation covers explosives like gelatin, dynamite, blasting gelatin, etc., which are stronger and more sudden in their action than gunpowder. (Du Pont)

High furnace. The ordinary blast furnace. (Century)

High-grade. 1. An arbitrary designation for dynamite of 40 per cent strength or over. *See* Grade, 5. (Du Pont)
2. Rich ore. 3. To steal or pilfer ore or gold, as from a mine by a miner. *See* High-grading.

High-grade mill. A plant for treating high-grade ores.

High-grade ore. Rich ore. *Compare* Low-grade ore.

High-grader. One who steals and sells, or otherwise disposes of high-grade or specimen ores. A common practice in the early days of gold mining.

High-grading. Larceny of small particles of ore or gold by employees in a mine. (Goldfield Cons. Mines Co. *v.* Richardson, 194 Fed. Rept., p. 200)

High pillar. *See* Shaft pillar.

High-reef. A bedrock which frequently rises more abruptly on one side of a channel or water course than on the other. (C. and M. M. P.)

High-reef wash. A term usually applied to deposits of wash dirt upon the high-reef. (Duryee)

High side. A deep coal-mine car, *i. e.* one with high sides. *Compare* Gondola, 1.

High steel. Steel containing a large proportion of carbon. (Standard)

High values (Transvaal). Ore having a high assay value. (Rickard, Journal Chem. Met. and Min. Soc. of S. Africa, Jan. 1914, p. 361)

Hijuela (Sp.). 1. A small thread of ore or mineral. 2. A small drain. (Dwight)

Hijuelas (Mex.). A small-size torta, made up as a sort of assay on a large scale, with from 1 to 5 kilogrammes of argentiferous mud. (Dwight)

Hilera (Peru). A parting in a coal seam. (Halse)

Hilera costeable (Sp.). Pay streak. (Lucas)

Hill. 1. An arch or high place in a mine. (Roy)
2. (Scot.). The surface at a mine. (Barrowman)
3. (No. of Eng., Mid.) An underground inclined plane. (Gresley)
4. A natural elevation of land of local area and well defined outline. (Webster)

Hill clerk (Scot.). The person who weighs mineral, whether at the mine or depot connected therewith. (Barrowman)

Hill diggings. Placers on hills. (C. and M. M. P.)

Hiller. In pottery, a vessel used in making the glaze. (Standard)

Hillman; Hillsman. 1. (Scot.): A pit headman; a hill clerk. 2. A coal salesman. (Barrowman)

Hillock (Eng.). A heap of sterile vein-stuff or stone. (Hunt)

Hill sale (Scot.). Sale of coal at the mine in carts, as distinguished from shipment in railway cars. (Barrowman)

Hillside placers (Alaska). Placers on slopes, intermediate between creek and bench claims. (Purington, C. W., Bull. 259, U. S. Geol. Surv., p. 33)

Hilo. 1. (Mex.) Thread; pay streak; small stringer of ore. 2. (Peru) Strike of a vein. (Dwight)
3. *H. altos* (Sp.) Threads or small veins of ore extending into the upper or hanging wall. 4. *H. bajos*, Threads or small veins of ore extending into the lower or foot wall. (Min. Jour.)

Hindostan. A fine-grained sandstone used extensively in the manufacture of very cheap sharpening stones, especially axe stones. Found in Indiana. (Pike)

Hinged-hammer crusher. *See* Williams Hinged-hammer crusher.

Hinge fault. *See* Fault.

Hinging coal (Scot.). Coal lying at a moderately high inclination. (Barrowman)

Hinsdalite. A mineral related to alunite, but with replacements as indicated in the following formula: $2PbO.3Al_2O_3.2SO_3.P_2O_5.6H_2O$. (U. S. Geol. Surv.)

Hintzeite. *See* Heintzite.

Hip-and-ridge angle. A piece of roofing tile required where a hip starts from a ridge. (Ries)

Hip roll. A tile used for covering the hips on roofs, and which in cross section may show either roll or an angle. (Ries)

Hip roll starter. A closed hip piece of roofing tile used at the lower end of a hip roll. (Ries)

Hip tile. A tile made to fit the hip of a roof. (Standard)

Hircine. A fossil amorphous resin, the composition of which has not been determined. (Century)

Hirst. A bank of sand in or along a river. (Standard)

Hislopite. A grass-green variety of calcite in which the color is due to admixed glauconite. (Standard)

Historical geology. *See* Geology.

Hit (Eng.). To find, prove, or cut into a coal seam or fault. (Gresley)

Hitch. 1. (Scot. and Newc.) A minor dislocation of a vein or stratum not exceeding in extent the thickness of the vein or stratum. 2. A hole cut in the side rock, when this is solid enough, to hold the cap of a set of timbers, permitting the leg to be dispensed with. (Raymond)
3. To attach trams to hauling ropes by short chains. (Gresley)
4. A sudden stoppage of pumping machinery. (Standard)

Hitch-and-step (So. Wales). A system of regulating the distance between the faces of stalls in longwall work. (Gresley)

Hitch cutter. A miner who cuts places in the coal, ore, or wall in which to rest or place timbers to prevent rock from falling. (Andrews *v.* Tamarack Min. Co., 114 Michigan, p. 375; 72 N. W. Rept., p. 242; Danula *v.* Quincy Min. Co., 166 Michigan, p. 351; 130 N. W. Rept., p. 604; Andrews *v.* Tamarack Min Co., 180, Michigan, p. 73)

Hitcher. The man who runs trams into or out of the cages, gives the signals, and attends at the shaft when men are riding in the cage. (Gresley). *See also* Cager.

Hitcher-on. The person employed at the bottom of a shaft or slope to put loaded cars on, and take empty cars off the cage. (Roy)

Hitch wheels (So. Staff.). Drums upon which winding bands (chains) coil. (Gresley)

Hoarding (Eng.). A temporary closed fence of boards placed around a work in progress. (C. and M. M. P.)

Hoarstone. A stone designating the bounds of an estate; a landmark. (Webster)

Hoastman (Local, Eng.). A member of the principal civic corporation of Newcastle-on-Tyne; formerly, a member of a merchant gild of that place which received strangers that came to buy coal and certain other commodities, conducted the purchases, and levied upon them a certain duty. In later times the gild controlled the selling and exportation of coal. (Standard)

Hobo connection. Same as Parallel connection, as used in blasting. (Du Pont)

Hod. 1. (Forest of Dean) A cart or sled for conveying coal in the stalls of thin seams. (Gresley)
2. A wooden tray or trough with a handle, borne on the shoulder, for carrying bricks, mortar, etc. (Webster)

Hoek. A corner or angle, as between mountains; a secluded valley. (Standard)

Hofmannite. A crystalline, colorless, tasteless, and odorless mineral, possessing a specific gravity of 1.0565; it melts at 71° C. and has the composition $C_{20}H_{30}O$. It forms a white crystalline efflorescence on lignite in the vicinity of Sienna. (Bacon)

Hogar (Mex.). Hearth of a furnace. (Dwight)

Hogback. 1. (Eng.) A sharp rise in the floor of a coal seam. (Gresley)
2. A ridge formed by the outcropping edge of tilted strata; hence any ridge with a sharp summit and steeply sloping sides, as an esker (Webster). Called also Horseback.

Hoggan (Corn.). The food carried by the miner to the mine. (Davies)

Hogger. 1. (Scot.) A leather or canvas delivery pipe at the top of a sinking set of pumps. (Barrowman) 2. (No. of Eng.) Stockings without feet, worn by coal miners. (Gresley)

Hogger pipe (No. of Eng.). The upper terminal pipe with delivery hose from the mining pump. (Century)

Hogger pump. The topmost pump in a shaft. (Raymond)

Hoggin. A material composed of screenings or siftings of gravel or a mixture of loam, sand, and gravel, used in making filter beds, as a binding material for metal roads, or the like. (Webster)

Hog-tooth spar. Like a dog-tooth spar, a name for calcite, occurring in acute scalenohedrons. (Chester)

Hohenlohehütte furnace. A retort furnace for the distillation of zinc. (Ingalls, p. 408)

Hoist. 1. An engine for raising ore, rock, coal, etc., from a mine and for lowering and raising men and material. Also called Hoister. 2. The amount of ore, coal, etc., hoisted during a shift.

Hoisting block. The lower block of a block-and-fall, bearing the hoisting hook. (Standard)

Hoisting crab. A crab, winch, or windlass for hoisting. (Standard)

Hoisting engineer; Hoist man. One who operates a hoisting engine, especially at a mine or quarry. Also called Engineman.

Hoisting jack. A device for applying hand power to lift an object by means of a screw or lever, or by hydraulic power. (Century)

Hoisting rope. A rope composed of a sufficient number of wires and strands to insure strength and flexibility. Such ropes are used in shafts, elevators, quarries, etc. (C. M. P.) *See* Cable, 1 and 3.

Hoja (Sp.). Leaf; sheet; *H. de pizarra*, a slab of slate; *H. de libro*, (Mex.) a black schistose rock; *H. de papel*, finely laminated clay, slate or talc. (Halse)

Hojalata (Sp.). Tin plate. (Halse)

Hojalatero (Mex.). Tinsmith. (Dwight)

Holding iron. *See* Furnace holding iron.

Hold out! (Derb.). An exclamation by the banksman, down a shaft to the bottomer, when men are about to descend the shaft, to let him know that he is not to send up a load of coal, but merely the empty rope or chain. (Gresley)

Hole. 1. To undercut a seam of coal by hand or machine. 2. A bore hole. 3. To make a communication from one part of a mine to another. (Steel) 4. (Joplin, Mo.) A local term for a mine shaft.

Hole man (Penn.). One who loads holes with explosives; a charger. (De Nardo *v.* Stephens-Jackson Co., Penn. 104 Atlantic, p. 585)

Holes (No. of Eng.). The different stages or floors from which the cages are loaded at the shaft bottom. (Gresley)

Hole system. A system of contract work underground by which the pointing of the holes and blasting are done by company men and the rest of the work by the miner. (H. C. Hoover, p. 165)

Holing. 1. The working of a lower part of a bed of coal for bringing down the upper mass. 2. The final act of connecting two workings underground. (Raymond)

Holing about (Eng.). The operation of establishing an air current between the down-cast and up-cast shafts. (G. C. Greenwell)

Holing-pick. A pick used in holing coal. (Standard)

Holing-shovel (So. Staff.). A short-handled, round-bladed shovel. (Min. Jour.)

Holing-through. Driving a passage through to make connection with another part of the same workings, or with those in an adjacent mine (Chance). *See also* Holing, 2.

Hollín (Mex.). Fume; condensed furnace-smoke; soot. (Dwight)

Hollow blocks. Hollow tiles, larger than common brick, usually of rectangular form, and having some cross webs. Used in exterior walls and also partitions. (Ries)

Hollow brick. Brick molded with hollow spaces in them. They are usually strengthened by cross webs. (Ries)

Hollow-fire (Eng.). A kind of hearth with blast, used for reheating the blooms produced in the South Welsh process of fining, or the bars of blister-steel in the manufacture of shear-steel. (Raymond)

Hollow lode (Aust.). A lode filled with vugs. (Power)

Hollow-plunger pump. A pump used in mining and quarrying, as in muddy and gritty water. (Standard)

Hollow reamer. A tool for straightening a crooked borehole. (Gresley)

Hollows (Eng.). Old abandoned workings. (Gresley)

Hollow spar. Andalusite.

Hollway process. A process for the removal of sulphur from iron and copper sulphides by fusion and pneumatic treatment, analogous to the manner in which carbon, etc., are removed in the Bessemer process. (Raymond)

Holmium. A chemical element of the rare-earth group, not yet definitely isolated. Symbol, Ho; atomic weight, 163.5.

Holocrystalline. A textural term applied to those rocks that consist entirely of crystallized minerals as distinguished from those with more or less glass. (Kemp)

Holohedral. In crystallography, possessing all the faces that have equivalent intercepts required by the symmetry of the group to which the form belongs. (La Forge)

Holohedron. A form having the full number of symmetrically arranged planes crystallographically possible. (Standard)

Holohemihedral. Denoting hemihedrons in which all the sectants have half instead of the whole number of similar planes. (Standard)

Holohyaline. Completely glassy. (Iddings, Igneous Rocks, p. 187)

Holomorphic. Uniformly or completely symmetrical. (Standard)

Holosiderite. Meteoric iron; a meteorite consisting of metallic iron without stony matter. (Webster)

Holystone. A soft sandstone used to scrub decks. To scrub with holystone. (Webster)

Home (No. of Eng.). In the direction of, or toward the shaft, as in an underground mine. (Gresley) Outby.

Homestead act (U. S.). An act of Congress authorizing the sale of public lands in parcels of 160 acres each, to settlers.

Homestead entry. An entry under the statute enacted to secure homesteads to actual settlers on the public lands. (Hartman *v.* Warren, 76 Fed. Rept., p. 160)

Homichlin. A variety of chalcopyrite that is partly altered to bornite. (Standard)

Homilite. (Norway). A black, blackish brown mineral, $(Ca,Fe)_3B_2Si_2O_{10}$. Crystals often tabular. (Dana)

Homocline. In geology, a group of inclined beds of the same dip, which may be either monoclinal, one limb of a fold, or isoclinal, but whose actual relations are not determinate (La Forge). Used in a more restricted sense than a monocline in that it applies to small or fragmentary areas.

Homoeomorphism. A near similarity of crystalline forms between unlike chemical compounds. (Power)

Homogeneous. Of the same kind or nature; consisting of similar parts, or of elements of a like nature; opposed to heterogeneous. (Webster)

Homogeneous metal. A variety of ingot metal produced by the open-hearth process, for example, steel. (Raymond)

Homogeneous steel. Cast steel without blowholes. (Standard)

Honda (Mex.). A rope chair for descending a shaft. A sling. (Dwight)

Hondonada (Sp. Am.). An excavation. (Lucas)

Hondura (Colom.). A sudden depression in the surface of the bed rock of placer mines. (Halse)

Hone. An extremely fine-grained sandstone suitable for sharpening razors or other fine-edged instruments or tools. (Bowles)

Honestone. A stone suitable for making hones for sharpening; also, a hone ready for use. (Webster)

Honeycomb. Any substance, as cast-iron, worm-eaten wood, etc., having cells suggesting a honeycomb (Webster). Also applied to certain rock structures.

Honeycomb dun (Eng.). A Devonshire name for a vesicular, schistose, trappean rock. (Roberts)

Honey-stone. A mellate of aluminum, $Al_2C_{12}O_{12}+18H_2O$, of yellowish or reddish color, and a resinous aspect, crystalizing in octahedrons with a square base. The mineral is harder than gypsum, but not so hard as calcite. (Dana)

Hoo cannel (Eng.). Impure earthy cannel coal. (Gresley)

Hood. 1. *See* Bonnet, 1. 2. The top of a pump. (Standard)

Hook block. The lower sheave or block, on a crane hoist, to which a swivel hook is attached. (Willcox)

Hooker-on. Same as Hook-on; also Hanger-on.

Hook handles (Corn.). The handles by which a windlass is worked. (Min. Jour.)

Hook-on. The man who adjusts cables or chains, about objects to be lifted; places hook of crane-block in bucket bails, and hooks of winches to objects to be moved, etc. (Willcox)

Hookworm. *See* Ankylostomiasis.

Hopes (No. of Eng.). Valleys formed by denudation of the coal measures of the County of Durham. (Gresley)

Höpfner process. A process for the recovery of copper in which a solution of cuprous chloride in sodium or calcium chloride is used to dissolve copper sulphides. The solution is then electrolyzed in tanks with diaphragms. The anodes are impure copper, the cathodes pure copper. Copper is deposited from the cuprous chloride solution, and cupric chloride regenerated. (Liddell)

Hopper. 1. A trap at the foot of a chute for regulating the contents of a wagon. 2. A place of deposit for coal or ore. (Raymond)
3. A funnel-shaped feeding trough.
4. (Derb.) A dish used by miners to measure ore. It varies from 14 to 16 pints in different localities. (Mander)

Hopper car. A car for coal, gravel, etc., shaped like a hopper, with an opening at the bottom to discharge the contents. (Standard)

Hopperings. In gold washing, gravel retained in the hopper of a cradle.

Hopper-truck (Aust.). *See* Hopper car.

Hoppet. 1. (Eng.) A hoisting bucket. (Webster)
2. A vessel for measuring ore. (Standard)

Horbachite. A metallic, dark-yellow, iron-nickel sulphide that is closely related to pyrrhotite, and is found as a massive mineral. (Standard)

Horca (Sp.). Hoist; gallows frame; headgear. (Halse)

Horizon. 1. In geology, any given definite position or interval in the stratigraphic column or the scheme of stratigraphic classification: generally used in a relative sense. 2. As used by some British geologists, one or several consecutive beds characterized by a certain fossil or fossils; a zone. (La Forge)

Horizontal-cut underhand. *See* Underhand stoping.

Horizontal fault. *See* Fault.

Horizontal slicing (ascending). *See* Overhand stoping.

Horizontal slicing (descending). *See* Top-slicing and cover-caving.

Horizontal throw. *See* Heave.

Horley-Sedgley water finder. An instrument used for ascertaining the amount of water in a tank containing oil. (Mitzakis)

Hormigón (Sp.). Concrete (Lucas)

Hormiguillar (Peru). To add salt and some water to the amalgamating charge. (Dwight)

Hormiguillo (Peru). 1. A line of laborers who pass material from hand to hand. 2. The second treading in the *patio* process before mercury is added. (Halse)

Horn. 1. (Derb.) A line at an angle of 45° with the face of the coal. (Min. Jour.)
2. *See* Spoon, 1.

Hornacho (Sp.). 1. A mine shaft. *See* Pozo. 2. An excavation made in the hillside in search of ore. (Halse)

Hornada (Sp.). One complete smelting operation in any furnace. (Halse)

Hornblende. A variety of the mineral amphibole. Color between black and white, through various shades of green, inclining to blackish green; also dark brown; rarely yellow

pink, rose-red. In part a normal metasilicate of calcium and magnesium, $RSiO_3$, usually with iron, also manganese, and thus in general analogous to the pyroxenes. The alkali metals, sodium and potassium, also present, and more commonly so than with pyroxene. (Dana). The name of the mineral is prefixed to many rock names.

Hornblende schist. In petrology, a schistose rock, generally metamorphic, composed essentially or chiefly of hornblende. (La Forge)

Hornblendite. A granitoid, igneous rock, consisting essentially of hornblende and analogous to pyroxenite. (Kemp)

Horn coal. 1. (Eng.) Coal worked partly end-on and partly face-on. (Gresley)
2. A variety of cannel coal from South Wales. (Bacon)
3. A coal that emits, when burning, an odor like that of burnt horn. (Power)

Hornfels. A dense, compact rock produced from slate by the contact action of some igneous intrusion, especially granite. Various microscopic minerals are developed in it. (Kemp)

Hornillo (Sp.). 1. A small oven or furnace. 2. A portable assay furnace. 3. A mud volcano. (Halse)

Hornito: A gas-emitting vent on, and originating in a lava flow (Daly, p. 135). A low, oven-shaped mound common in the volcanic districts of South America, usually emitting from its sides and summit hot smoke and other vapors. (Century)

Horn lead. Lead chloride. (Century)

Horno (Sp.). 1. A kiln; *H. de cal*, a lime kiln. 2. A furnace; *H. alto*, a blast furnace; *H. acoplado*, a double-hearth furnace; *H. castellano*, a low, shaft furnace; *H. cubierto*, a jacket furnace; *H. de afinación*, a refining furnace; *H. de cuba*, a shaft furnace, generally a blast furnace; *H. de fundición*, a smelting furnace (Lucas); *H. de magistral*, roasting stove, for copper pyrites (Min. Jour.); *H. de reverbero*, a reverberatory furnace; *H. de tostar*, a roasting furnace. (Halse)

Horn quicksilver. Mercurous chloride, Hg_2Cl_2. Calomel. (Dana)

Horns (Eng.). Guides on the winding drum to keep the rope in place. (Bainbridge)

Horn silver. Chloride of silver. *See* Cerargyrite. (Dana)

Horn socket. In well boring, an implement to recover lost tools, especially broken drill poles, etc. It consists of a conical socket, the larger end downward, which slides over the broken part, a spring latch gripping it when entered. Frequently a flaring mouthpiece is riveted to the horn socket, making it a bell-mouth socket. (Nat. Tube Co.)

Horn spoon. A longitudinal section, cut from the under side of an ox horn and scraped thin; used for washing auriferous gravel and pulp where delicate tests are required (Hanks). *See also* Spoon, 1.

Hornstone; Chert. An impure flint or chalcedony with splintery fracture. More brittle than flint. (U. S. Geol. Surv.)

Horny (Scot.). An inferior kind of gas coal, the pieces of which rattle with a sound suggestive of horns. (Barrowman)

Horn tiff (Mo.). Calcite stained with carbonaceous material; sometimes dark enough to be mistaken for sphalerite.

Horquilla (Mex.). A coke-fork. (Dwight)

Horse. 1. A mass of country rock lying within a vein. (Book *v.* Justice Mining Co., 58 Fed. Rept., p. 125)
2. Any irregularity cutting out a portion of the vein. (Consol. Wyoming Gold Mining Co. *v.* Champion Mining Co., 63 Fed. Rept., p. 544; Barrett *v.* Dessy, 78 Kansas, p. 644; 97 Pacific, p. 786.) *See* Dirt-fault and Rock-fault. *To take horse.* To split into branches as a vein of ore in a mine. (Standard)
3. (Scot.). A seat suspended from a crane rope in a shaft (Barrowman). *See also* D. Link.
4. (Eng.). In saltmaking, to set the lumps of salt upon the top of each other in the hothouse. (Webster)

Horse arm (Eng.). The part of a whim to which the horses are attached. (Bainbridge)

Horseback. 1. Natural channels cut or washed away by water in a coal seam, and filled up with shale and sandstone. Sometimes a bank or ridge of foreign matter in a coal seam. 2. A portion of the roof or floor which bulges or intrudes into

the coal. 3. A mass of country rock lying within a vein or bed (Steel). *See also* Horse, 1.
4. A piece of slate, flat underneath, thick in the middle, and running out to a thin edge upon each side (Stratton *v.* Northeast Coal Co., 164 Kentucky, p. 303). *See also* Kettle bottom.
5. (Maine) A low and somewhat sharp ridge of sand or gravel; also, but not generally, a ridge of rock which rises for a short distance with a sharp edge. A hogback. (Century)

Horse beans (Ches.). A stratum of a granular rock immediately overlying salt beds, in which brine occurs (Gresley). Also called Shaggy metal.

Horse block; Horsing block. A frame of timber on which to rest the raised end of an excavator's wheeling plank. (Webster)

Horse engine; Horse gin (Scot.). A winding drum driven by horse power for raising mineral. (Barrowman.)

Horse fettler (So. Staff.). A man who looks after the underground horses and ponies. (Gresley)

Horseflesh ore (Corn.). Bornite. (Raymond)

Horse gin. Gearing for hoisting by horse power. (Hanks)

Horsehead (Eng.). A wooden box used for mine ventilation. (Bainbridge)

Horse height (Mid.). Sufficient distance between the floor and the roof, for a horse to travel without knocking his head. (Gresley)

Horse-in-the-lode (Eng.). A dead or worthless part in the lode; generally composed of fragments of the strata through which the lode passes, which invariably divides the lode (Hunt). *See also* Horse, 1.

Horse load (Eng.). A measure of weight used in some parts of East Lancashire. 1 horse load=4 cwt.; 5 horst loads equal one ton. (Gresley)

Horse platform (Scot.). The switch and crossing used on (including the rails) a horse-haulage road. (Barrowman).

Horseplay. Rude or boisterous play (Webster). Often results in serious accidents at mines and industrial plants.

Horsepower. A unit of power numerically equal to a rate of 33,000 foot pounds of work per minute (=550 foot pounds per second) used in stating the power of a steam engine or other prime mover. (Webster)

Horsepower hour. The work performed, or energy consumed, by working at the rate of one horsepower for one hour. It is equal to 1,980,000 foot pounds. (Webster)

Horse pump. An ordinary lifting pump worked by horse power. (Duryee)

Horse road. An underground way for horse haulage. (Gresley)

Horse run. A device by means of which horses draw loaded vehicles up an incline from excavations. (Standard)

Horse shovel. A road scraper. (Century)

Horses' teeth (Corn.). A quarryman's term for white elongated crystals of feldspar, which gives the granite its porphyritic character. (Power)

Horse tree (Eng.). A strong timber beam for supporting pumps. (Gresley)

Horseway. A road fit for travel with a horse. (Webster)

Horse whim. A horse-power winding drum for raising ore from a mine. A horse gin.

Horsfordite. A silver-white, massive copper antimonide, probably Cu_6Sb, occurring in Asia Minor. (Dana)

Horsing (Eng.). Drawing trams underground by horses and ponies. (Gresley)

Horst. A tract of the earth's crust separated by faults from the surrounding tracts which have been relatively depressed (Webster). Also spelled Horste.

Horwood process. A flotation process in which if a mixture of iron, copper, lead, and zinc sulphides is roasted, the three former can be changed to oxide and sulphide at a comparatively low temperature, whereas the blende is practically unaltered. The partly roasted material is then subjected to a heated-acid oil-flotation process, by which the zinc is floated, the other metals staying behind. (Liddell)

Hose. 1. A strong flexible pipe made of leather, canvas, rubber, etc., and used for the conveyance of water, or air under pressure, to any particular point. (C. and M. M. P.)
2. (Scot.) A rope shackle; an iron clasp at the end of a rope. (Barrowman)

Host. A mineral that contains another (Standard). *Compare* Hair stone.

Hot. A term applied to a mine or part of a mine that generates methane in considerable quantities.

Hotbed. A platform in a rolling mill on which rolled bars lie to cool. (Raymond)

Hot-blast. Air forced into a furnace after having been heated. (Raymond)

Hot-blast man. A stove tender at blast furnaces. (Willcox)

Hot-blast system. In ventilation, the plenum system. (Webster)

Hot-cast porcelain. *See* Opaline.

Hotching (Eng.). Jigging, as of lead ore. (Ure)

Hot chisel. A chisel for cutting hot metal: distinguished from a Cold chisel. (Standard)

Hot-drawn. A term used to signify the product of drawing, when the operation is performed on material that is hot—usually red hot. (Nat. Tube Co.)

Hothouse. A heated building or chamber for drying pottery or other wares; drying room. (Standard)

Hot roll. To roll while hot, as a metal. (Webster)

Hot saw. A circular saw for cutting hot bar-iron in small pieces. (Standard)

Hot-short. Brittle when heated, especially beyond a red heat, as hot-short iron. (Webster)

Hot spot. A small portion of the furnace shell that is warmer than the rest. It indicates a thin lining. (Willcox)

Houiller. The French equivalent for coal measures. (Roberts)

Hour-glass structure. A structure resembling the shape of an hour-glass seen in thin sections of certain minerals and due to differences of molecular attractions in different directions in a crystal. (Iddings, Rock minerals, p. 72)

House (Eng.). *See* Gunnies and Turnhouse.

House of water (Corn.). A cavity or space filled with water. (Raymond)

Housing. The casing for a machine or part thereof.

Hove (Scot.). Past participle of heave. The floor of a mine working is said to heave or rise. (Barrowman)

Hovel. A large conical or conoidal brick structure, around, or within which the ovens or firing kilns are grouped in the manufacture of porcelain. (Webster)

Howdie horse (No. of Eng.). A pit horse kept on the surface for use in cases of emergency. (Gresley)

Howell. The upper stage in a porcelain furnace. (Standard)

Howell furnace. A form of revolving roasting furnace. (Raymond)

Howk (Scot.). To dig; scoop; make a hollow; to burrow. (Century)

How way! (No. of Eng.). A signal to lower the cage. (Gresley)

Hoya. 1. (Sp.) A hollow or excavation; *H. de carbón*, a coal basin.
2. (Peru) The bed of a river. (Halse)

Hoyo (Sp.). A pit; an excavation. A portion of ore worked with a few laborers. (Halse)

H-piece. That part of a plunger-lift in which the valves or clacks are fixed. (Raymond)

Huacal (Mex.). Crate; bowl; drinking-dipper made of a gourd. (Dwight)

Huachaca (Peru). The portion of ore belonging to the laborer who operated on shares. (Dwight)

Huaillaripa (Peru). Thief of gold ore. (Dwight)

Huaillaripear (Peru). 1. To steal gold ore. 2. To extract gold from tailings by means of sheepskins in a gentle current of water. (Dwight)

Huaira. 1. (Peru) Ancient Indian smelting furnace (still used in Potosi, Bolivia). (Dwight)
2. A ventilating brattice. (Halse)

Huairacañon (Peru). A brattice, generally of wood. (Dwight)

Huairuna (Peru). Small earthen retort, used for retorting amalgam, extracting from 5 pounds to 15 pounds silver from each charge. (Dwight)

Huantajayite. An argentiferous variety of halite, 20 NaCl+AgCl, occurring in cubic crystals and as an incrustation. (Dana)

Huaquero (Peru). An earthenware pitcher found in Indian burial grounds. (Halse)

Huascolite. A variety of galena in which part of the lead is replaced by zinc. (Standard)

Hübnerite. Nearly pure manganese tungstate, $MnWO_4$. When pure it contains 76.6 per cent tungsten trioxide WO_3. (U. S. Geol. Surv.)

Hucica (Panama). High-lying alluvial deposits. (Lucas)

Huckle (Staff. and Derb.). The summit or apex of an anticline or saddle-back. (Page)

Hudge. 1. (Som.) *See* Bowk, 1. Also a small box or tram without wheels, running on timber slides, drawn by a boy, in thin and steep seams. (Gresley)
2. An iron bucket for hoisting ore or coal. (Raymond). *See* Bowk, 2.

Hudsonite. A variety of Cortlandtite. (Kemp)

Hueja (Mex.). A bowl made from a gourd. *See also* Jicara. (Dwight)

Huel (Corn.). A mine; a variant of wheal.

Huella (Mex.). A trace of gold or silver in assaying. (Dwight)

Hueso. 1. (Sp.) Limestone remaining unburnt in a kiln. 2. (Mex.) Wood tin. 3. (Chile) Yellowish compact caliche. 4. (Peru) Bone or argillaceous seams in coal beds. (Halse)

Huevo (Colom.). 1. A name applied to enlargements in ore bodies. 2. A large bowlder of granite or other hard rock in soft country rock. (Halse)

Huff separator. An electrostatic machine depending on the repelling and attracting action of electrically charged particles. The feed is passed over a roller, and the constituents take various electrical charges according to conductivity and are repelled accordingly. (Liddell)

Hugger (No. of Eng.). In coal mining, a back or cleat. (Gresley)

Huingaro (Mex.). Pick, or pick ax. (Halse)

Hule (Sp.). Oil cloth; oil skin. (Halse)

Hulk. 1. (Corn.) To take down and remove the softer part of a lode, before removing the harder part. *See* Gouge, 1, and Dzhu. 2. The removal of the soft gouge. 3. The excavation made by this operation. (Century)

Hulla (Sp.). 1. Pit coal. Black bituminous coal. 2. A generic term for all fossil coal; *H. apizarrada*, slate coal; *H. brillante*, anthracite; *H. de llama*, bituminous coal; *H. grasa*, a coking coal; *H. magna*, noncoking coal; *H. para gas*, gas coal. (Halse)

Hullera (Sp.). 1. A coal mine; a colliery. 2. A coal formation. (Halse)

Humboldtilite. A silicate of aluminum and iron belonging to the melilite group. (Dana)

Humedad (Mex.). Moisture. (Dwight)

Humidity. The condition of being humid; dampness; moisture; as, the humidity of the atmosphere. (Standard)

Humidostat. A device to regulate atmospheric humidity. (Webster)

Huminite. A hydrocarbon from Ostmark, Sweden, having the composition (ash-free): carbon, 67.15; oxygen, 29.83; hydrogen, 2.55; nitrogen, 0.47; and sulphur, 0 40 per cent. (Bacon)

Humite. A basic fluo-silicate of magnesium. Orthorhombic. Fracture subconchoidal to uneven. Brittle. Luster vitreous to resinous. Color white, light-yellow, honey-yellow to chestnut-brown and garnet, or hyacinth-red. (Dana)

Hummock. 1. A small elevation; hillock. 2. A pile or ridge of ice on an ice-field. (Standard)

Hummocky. Lumpy, or in small uneven knolls. (Roy. Com.)

Humo (Sp.). Fume; smokedamp, or damps in a mine. (Halse)

Hump (Aust.). A long tramp with a bundle on one's back, as a *hump* of 50 miles. (Webster)

Humpe (Peru). Carbon dioxide gas in mines; choke damp. (Halse)

Humphed coal (Scot.). Coal altered by contact with an igneous rock; inferior coal. (Barrowman)

Humus. A dark brown substance, formed usually in the soil, due to the partial decomposition of vegetal matter; the organic portion of the soil. (Webster)

Hund (Pr.). A dog. A rectangular iron tram or wagon on four small wheels. (Gresley)

Hundido (Sp.). Cave or run. *See* Derrumbe. (Halse)

Hundimiento (Sp.). 1. A cave or run of ground; fall of roof. 2. Letting down the roof, as in longwall working. Subsidence. (Halse)

Hundred-weight. A weight commonly reckoned in the United States, and for many articles in England, at 100 pounds avoirdupois; but commonly in England, and formerly in the United States, at 112. There is also an older hundredweight, called the *long hundredweight*, of 120 or six-score pounds. (Standard)

Hungarian mill. A rotating, grinding mill used in Hungary for removing small portions of gold from quartz by mixing with mercury: one of the many forms of pan-amalgamators. (Standard)

Húngaro (Peru). A roasting furnace with two beds, one above the other. (Halse)

Hungry. Hard, barren vein matter, as white quartz. *Compare* Likely. (Hanks)

Hung shot. A shot which does not explode immediately upon detonation or ignition (C. and M. M. P.). *See also* Hangfire.

Hunker. 1. (India) Yellowish clay containing concretionary nodules. (Gresley)
2. Eng.) To sit with the balls of the feet upon the ground and the knees bent, so that the thighs rest on the calves of the legs. This position no doubt became habitual with miners from the nature of their underground work. (G. C. Greenwell)

Hunt continuous filter. A horizontally-revolving continuous-vacuum filter. It consists of an annular filter bed, usually of triangular wooden slats filled with coarse sands. The vacuum withdraws part of the pulp moisture as soon as the bed is formed. A spray then washes it after which the vacuum dries it and the material is then scraped off. (Liddell)

Hunt and Douglas process. Consists in roasting matte carrying copper, lead, gold, and silver at a very low temperature, forming copper sulphate and oxide but not silver sulphate. This product is leached with dilute sulphuric acid for copper. The resulting solution is treated with calcium chloride and the copper precipitated as subchloride by passing SO_2 through the solution. The cuprous chloride is then reduced to cuprous oxide by milk of lime, regenerating calcium chloride, and the cuprous oxide is smelted. (Liddell)

Huntilite. A silver arsenide occurring with native silver at Silver Islet, Lake Superior, Michigan. (Century)

Hunting coal (York.). Ribs and posts of coal left for second working. (Gresley)

Huntington and Heberlein process. *See* Blast-roasting.

Huntington mill. A mill of the Chilean type operating by the centrifugal force of steel rollers revolving against the inner surface of a heavy horizontal steel ring or die. The rollers are suspended upon rods from horizontal arms by short trunnions allowing a swing of the rod and roller in a direction radial from the central vertical shaft. (Liddell)

Hunt's process. Originated by Bertram Hunt for treating precious metal ores containing copper or zinc, using an ammoniacal cyanide solution and recovering ammonia by boiling. The process may more truly be said to have been devised and perfected by Mosher. (Liddell)

Hurdled ore. Ore passed through a coarse screen, like a mortar screen. (Davies)

Hurdle screen (Scot.). A temporary screen or curtain for clearing gas out of a pit (Gresley). Used especially where gas has collected in pot holes or caves in the roof.

Hurdy-gurdy. 1. *See* Hurdy-gurdy wheel. 2. A dance house in a mining camp. (Standard)

Hurdy-gurdy drill (Aust.). A hand auger used for boring holes in coal. (Power)

Hurdy-gurdy wheel. A water wheel operated by the direct impact of a stream upon its radially-placed paddles. (Raymond)

Hurgón (Sp.). A poker; *H. de punta curva*, a rabble. (Halse)

Hurlbarrow (Scot.). A wheelbarrow. (Standard)

Hurler (Scot.). One who wheels bricks or heavy material on a wheelbarrow. (Standard)

Hurley (Scot.). A box on wheels; a hutch. (Barrowman)

Huronian. In geology, in the usage of the U. S. Geological Survey, the lower of the two series comprised in the Algonkian system. Also the corresponding geologic epoch. By some geologists the Huronian is divided into Lower Huronian, Middle Huronian, and Upper Huronian or Animikean. (La Forge)

Hurrier. *See* Haulier. Generally a small boy who trams coal. (Gresley)

Hurry. 1. To haul, pull, or push cars of coal, in a mine. (Gresley)
2. (Scot.) A screen or sieve. 3. A chute, slide or pass as for ore in a mine, or for coal discharged from cars into vessels. (Webster)
4. (Gt. Brit.) A wooden staging on a navigable river, to which the railways are conducted from coal pits: used in loading vessels with coal. (Standard)

Hurry gum (Scot.). The fine material that passes through a screen or sieve. (Barrowman)

Hush (Gt. Brit.). To clear away (soil) from bedrock in prospecting. (Standard)

Hushing. The discovery of veins by the accumulation and sudden discharge of water, which washes away the surface soil and lays bare the rock. *See also* Booming. (Raymond)

Husky. An Eskimo dog (Webster). Used extensively in traveling and freighting in the far north.

Hutch. 1. (Scot.) A low car, suited both to run in a level and to be hoisted on a cage. 2. (Corn.) A cistern or box for washing ore. *See also* Jig, 1. (Raymond)
3. To wash ore in a box or jig. (Webster)
4. (Scot.) A basket for coal. 5. (Scot.) Two hundredweight of pyrite. (Standard)
6. The fine concentrates which pass through a jig screen.

Hutch cleading (Scot.). The wood comprising the bottom, side, and end boards of a hutch. (Barrowman)

Hutch mounting (Scot.). The ironwork on the frame and box of a wooden hutch. (Barrowman)

Hutch road (Scot.). A hutch tramway. (Barrowman)

Hutch runner (Scot.). A boy who draws hutches. (Gresley)

Hüttenwerk (Ger.). A furnace or smelting house. (Davies)

Huttrill. A hard place in a vein or pipe. (Hooson)

Hyacinth. A transparent red, or brownish, variety of zircon, sometimes used as a gem. (Dana)

Hyaline. A synonym for glassy, which is often prefixed to the name of volcanic rocks to signify a glassy development, as hyalo-rhyolites. (Kemp)

Hyaline quartz. Quartz with a bluish, opalescent, cast due to presence of chalcedony. Used as a gem. (Standard)

Hyalite. A variety of opal (hydrous silica) which occurs in clear globular or botryoidal forms resembling drops of melted glass. (U. S. Geol. Surv.)

Hyalithe. An opaque variety of glass, frequently black, green, brown, red, etc., resembling porcelain, and valuable owing to its strength. (Standard)

Hyalography. The art of engraving on glass, either with a diamond, emery, or hydrofluoric acid. (Standard)

Hyalomelane. Basaltic glass. The word is derived from the Greek for black glass. (Kemp)

Hyalophane. A barium feldspar, $(K_2,Ba)Al_2(SiO_3)_4$. In crystals; also massive. Monoclinic. Switzerland and Sweden. (Dana)

Hyalopilitic. Composed of, or characterized by, innumerable slender microlites embedded in glass; a structure frequently found in basaltic lavas. (Webster)

Hyalosiderite. A highly ferruginous variety of common olivine. (Dana)

Hybrid porcelain. A ware originally made in imitation of oriental porcelain, containing some kaolin; essentially an artificial, soft porcelain, represented by the early Italian and French porcelains. (Standard)

Hydato. A prefix to lithological terms to indicate an origin through aqueous processes. (Kemp)

Hydatogenic. In geology, derived from or modified by substances in a liquid condition: said of the genesis of ores and other minerals: contrasted with Pneumatogenic. (Standard)

Hydatopneumatic. Pertaining to, or formed by, the combined action of gas and water. (Webster)

Hydatopneumatolytic. A term used in the discussion of certain ore deposits to describe their origin through the agency of water and vapors. (Kemp)

Hyde process. A flotation process patented in 1911, by James M. Hyde, in which a small amount of sulphuric acid, with or without the use of copperas, is used to give the slimy portion of the ore a preliminary coagulation before flotation. The sulphides, after agitation, are floated off rapidly and as completely as possible with a considerable overflow of freely flowing water, thereby producing an impure concentrate which is re-treated in a second machine. (Liddell)

Hydrargillite. A synonym for Gibbsite.

Hydrargyriasis. Chronic mercurial poisoning. (Webster)

Hydrargyrum. Mercury. (Webster)

Hydrate. 1. A compound formed by the union of water with some other substance and represented as actually containing water. 2. Less properly, a hydroxide, as calcium hydrate. (Webster)

Hydrated. Containing water in chemical combination, and hence in a definite proportion in each case, as gypsum which contains 'water of crystallization,' calcium hydrate, or lime which has absorbed water on slaking, hydrated oxide of iron, or yellow ocher, which can be readily converted into the anhydrous or red oxide by driving off the water by heat. (Roy. Com.)

Hydraulic. 1. Of or pertaining to fluids in motion; conveying, or acting, by water; operated or moved by means of water, as hydraulic mining. 2. Hardening or setting under water, as hydraulic cement. (Webster)

Hydraulic cartridge. A device used in mining to split coal, rock, etc., having 8 to 12 small hydraulic rams in the sides of a steel cylinder. (Webster)

Hydraulic cement. Cement which sets under water. The rocks, which on being calcined and ground very fine yield this cement, must contain in addition to lime certain proportions of alumina, silica and magnesia. A little iron is also usually present. (Roy. Com.)

Hydraulic dredge. A dredge in which the material to be excavated is mixed with water and pumped through a pipe line to the place of deposit. (Webster)

Hydraulic elevator. An elevator operated by the weight or pressure of water, especially an apparatus used in dredging and hydraulic mining which raises mud and gravel by means of a jet of water under heavy pressure inducing a strong upward current through the pipe. (Webster)

Hydraulic gradient. A line showing the fall in pressure of water or other liquid in passing through a pipe discharging at one end. (Webster)

Hydraulic hose. The flexible hose used to direct a stream of water against a wall or face of drift. (Davies)

Hydraulic jack. A jack for lifting, pressing, etc., in which pressure on the moving part is transmitted by a liquid, as water or oil.

Hydraulicity. The property of hardening under water; said of materials for hydraulic cement. (Standard)

Hydraulicking (Pac.). Washing down a bank of earth or gravel by the use of pipes, conveying water under high pressure. (Raymond)

Hydraulic lime. A variety of calcined limestone which, when pulverized, absorbs water without swelling or heating, and affords a paste or cement that hardens under water. (Standard)

Hydraulic limestone. A limestone which contains some silica and alumina, and which yields a quicklime that will set or form a firm, strong mass under water, as in hydraulic cements. (Dana)

Hydraulic mine-filling. Filling a mine with material transported by water. (Charles Enzian, Bull. 60, U. S. Bur. Mines)

Hydraulic mining. A method of mining in which a bank of gold-bearing earth or gravel is washed away by a powerful jet of water and carried into sluices, where the gold separates from the earth by its specific gravity (Standard). (Woodruff *v.* North Bloomfield Grand Mining Co., 18 Fed. Rept., p. 756.) Also used for other ores, earth, anthracite culm, etc. Hydraulic mining is made unlawful and prohibited in certain river systems where it obstructs navigation and injures adjoining landowners. (United States *v.* North Bloomfield Gravel Mining Co., 81 Fed. Rept., p. 249.) (U. S. Min. Stat., p. 934, 941–943)

Hydraulic mortar. Mortar that will harden under water (Standard). *Compare* Hydraulic cement.

Hydraulic ram. A machine for raising water by the energy of the moving water of which a portion is to be raised. (Webster)

Hydraulics. That branch of science or of engineering which treats of water or other fluid in motion, its action in rivers and canals, the works and machinery for conducting or raising it, its use in driving machinery, etc. (Webster)

Hydroapatite. A milk-white hydrous variety of apatite. (Standard)

Hydrocarbon. A compound containing only hydrogen and carbon. The simplest hydrocarbons are gases at ordinary temperatures; with increase in molecular weight they change to the liquid, and finally to the solid state. (Webster)

Hydrocarbon black. A synonym for Lampblack. (Bacon)

Hydroceramic. Describing porous pottery through which water exudes and causes coolness by evaporation. (Standard)

Hydroclastic. Clastic through the agency of water; said of fragmental rocks deposited by water. (Webster)

Hydrocyanic acid. An unstable, volatile, colorless, and extremely poisonous liquid compound, HCN, formed by decomposing metallic cyanides with hydrochloric acid. It has a characteristic odor resembling that of bitter almonds. Called also Prussic acid. (Standard)

Hydrodynamic. Of or pertaining to hydrodynamics; relating to the force or pressure of water or other fluids. (Standard)

Hydrodynamometer. An instrument for determining the velocity of a fluid in motion by its pressure. (Standard)

Hydrofluoric acid. A volatile, colorless, hygroscopic corrosive liquid compound, HF, formed by decomposing metallic fluorides. It readily attacks silica, and is largely used for etching on glass. (Standard)

Hydrofranklinite. *See* Chalcophanite.

Hydrogen. A gaseous element, colorless, odorless, tasteless, inflammable, and lighter than any other known substance. Symbol, H; atomic weight, 1.01; specific gravity, 0.07. (Webster)

Hydrogenous. Formed or produced by water; applied to rocks formed by the action of water, in contradistinction to pyrogenous rocks, or those formed by the action of heat. (Century)

Hydrogenous coal (Aust.). Coals containing a large quantity of moisture, *e. g.*, brown coal. (Power)

Hydrohematite. *See* Turgite,

Hydrology. That part of geological science which has to do with the relations of water standing or flowing beneath the surface of the earth.

Hydrolysis. A chemical decomposition by which a compound is broken up and resolved into other compounds by taking up the elements of water. (Century)

Hydromagnesite. A white, hydrous, magnesium carbonate that is earthy and chalklike. (Century)

Hydromechanics. The mechanics of fluids, including hydrostatics, hydrodynamics, hydrokinetics, and pneumatics. (Standard)

Hydrometallurgy. The reduction of ores by wet processes, as by leaching and precipitation.

Hydrometamorphism. Metamorphism, as of rocks, produced by water and heat: contrasted with Pyrometamorphism. (Standard)

Hydrometer. A floating instrument for determining the specific gravity of liquids. (Webster)

Hydrophane. A variety of common opal which becomes more translucent or transparent in water. (Dana)

Hydrophilic. A property possessed by colloids whereby they take up water in conjunction with the molecules of the colloid in a manner analogous to a closed hydrated molecule. Hydrophilic colloids are valuable dispersing mediums for the making of emulsions. (Rickard) A term used in flotation processes.

Hydrophilite. Chlorocalcite. Calcium chloride, $CaCl_2$. In white cubic crystals or as an incrustation at Vesuvius. (Dana)

Hydroplutonic. Relating to or produced by the joint action of heat and water, resulting in fusion at a lower temperature than by heat alone; aqueo-igneous. (Standard)

Hydropneumatic. Relating to, or produced, or worked by the combined action of water and air, or gas. (Standard)

Hydroscope. An instrument for detecting moisture, especially in the air. (Standard)

Hydrosphere. 1. The aqueous vapor of the entire atmosphere. 2. The aqueous envelope of the earth, including the ocean, all lakes, streams, and underground waters and the aqueous vapor in the atmosphere. (Webster)

Hydrostat. A contrivance or apparatus to prevent the explosion of steam boilers. (Webster)

Hydrostatic balance. A balance for weighing substances in water to ascertain their specific gravity. (Webster)

Hydrostatic pressure. The pressure exerted by a liquid, as water, at rest. (Standard)

Hydrostatics. That branch of physics which relates to the pressure and equilibrium of liquids, as water, mercury, etc.; the principles of statics applied to water and other liquids. (Webster)

Hydrotasimeter. An electrically operated apparatus showing at a distance the exact level of water, as in a reservoir; an electric high- and low-water indicator. (Standard)

Hydrothermal. Pertaining to hot water, especially with respect to its action in dissolving, re-depositing, and otherwise producing mineral changes within the crust of the globe. (Power)

Hydrous. Containing water chemically combined, as in hydrates and hydroxides. (Webster)

Hydrous salts. Salts containing the so-called water of crystallization.

Hydroxide. A compound of an element with the radical or ion, OH, as sodium hydroxide, NaOH.

Hydrozincite. A basic zinc carbonate, perhaps $ZnCO_3.2Zn(OH)_2$. Massive, fibrous, earthy or compact, as incrustations. Color white, grayish or yellowish. Occurs at mines of zinc, as a result of alteration (Dana). Also called Zinc bloom.

Hygrometer. An instrument or apparatus for measuring the degree of moisture of the atmosphere. (Webster)

Hygroscopic. Having the property of readily absorbing moisture from the atmosphere. (Power)

Hypabyssal. Having become consolidated from fusion, underground, under conditions intermediate between deep-seated and superficial conditions, and therefore differentiated by special structural features; said of certain igneous rocks, sometimes called dike-rocks. (Standard)

Hypautomorphic. In petrology, same as Hypidiomorphic and Subhedral. (La Forge)

Hyperite. Used in Sweden loosely for the rocks of the gabbro family, and in a restricted sense for olivine-norite. (Kemp)

Hyperphoric. Change in a rock by the introduction of a new mineral into, or the removal wholly or in part of an old mineral from the original rock mass, for example, dolomitization of limestone. (Power)

Hypersthene. An orthorhombic pyroxene, $(Fe,Mg)SiO_3$. (Dana)

Hypersthenite. An obsolete name for Norite. (Kemp)

Hypidiomorphic. In petrology, same as Subhedral, which *see*. (La Forge)

Hypocrystalline. In petrology, partiy crystalline; said of the texture of some igneous rocks which consist partly of crystallized minerals and partly of amorphous glass; hypohyaline. (La Forge)

Hypogeic. Pertaining to or derived from crustal and interior movements in the earth; as, the *hypogeic* work of mountain making. (Standard)

Hypogene. 1. A term proposed by Lyell for all nether-formed rocks, *i. e.* rocks that have assumed their present form at great depths beneath the surface, whether originally stratified or unstratified. The former belong to the metamorphic and the latter to the plutonic group. (Roy. Com.)
2. Applied to ores or ore minerals that have been formed by generally ascending waters as contrasted with supergene ores or minerals (Ransome). *Compare* Supergene.

Hypohyaline. Partly glassy. *See* Hypocrystalline. (Iddings, Igneous rocks, p. 187)

Hypsometer. An instrument for measuring the height above the sea level by determining the atmospheric pressure through observation of the boiling point of water. (Standard)

Hysteresis. 1. In physics, a lagging or retardation of the effect, when the forces acting upon a body are changed as if from viscosity or internal friction. 2. In a magnetic material, as iron, a lagging in the values of resulting magnetization due to a changing magnetizing force. (Webster)

Hysterobase. A name given by K. A. Lassen to the rock of a series of dikes, related to the diabases, but differing from them, in often having quartz, brown biotite, and brown hornblende, the last sometimes replacing the augite. There may be also some glass basis. (Kemp)

Hysterogenite. Posepny's term for mineral deposits derived from the débris of other rocks. The word means of secondary or later formation. *Compare* Idiogenite, Xenogenite. (Kemp)

Hysteromorphous. Applied to secondary deposits due to surface agencies. (Power)

I.

Ice age. The glacial period. (Webster)

Iceberg. A large floating mass of ice, detached from a glacier. (Webster)

Ice blink (Greenland). A cliff of ice on a coast (Webster). *See* Ice cliff.

Ice bowlder. A bowlder transported and deposited through glacial action. (Standard)

Ice cap. A perennial mantle of ice and snow covering a tract and moving in all directions from the center. A very large ice cap is an ice sheet, or continental glacier. (Webster)

Ice cliff. An abrupt shore of arctic ice, more or less interstratified and covered by earth and vegetation (Standard). *See* Ice blink.

Ice creeper. A creeper, used for walking on ice. (Webster)

Ice drift. Loose floating ice. (Standard)

Ice fall. 1. A frozen waterfall, or a similar mass of ice. 2. A falling of ice as from an iceberg. (Webster)

Ice field. A large field of floating ice (Standard). *See also* Ice float.

Ice float; Ice floe. A sheet, or flat free mass, of floating ice (Webster). *See also* Ice field.

Ice foot. A wall of ice formed by sea water and snow frozen at the seashore in polar regions. Also called Ice ledge. (Standard)

Iceland agate. A name for obsidian from Iceland. (Chester)

Iceland spar. Transparent calcite, which, owing to its strong double refraction, is largely used for optical purposes. Also called Iceland crystal. (Standard)

Ice ledge. *See* Ice foot

Ice mark. Any mark or indication left by moving ice or glacial action. (Standard)

Ice mill. The place where a glacier abrades underlying rock through the action of rubble. (Standard)

Ice mountain. An iceberg. (Standard)

Ice pack. A large area of floating pieces of ice driven together more or less closely. (Webster)

Ice pillar. A pedestal of ice on a glacier, supporting a broader block of stone, which has protected the ice beneath it from solar heat. (Standard)

Ice pyramid. A mound of ice on a glacier, having a stone or earthy débris lying against its foot. (Standard)

Ice quake. The crash, or concussion, attending the breaking up of masses of ice, often due to contraction from extreme cold. (Webster)

Ice river. A glacier (Standard). *See also* Ice stream.

Ice spar. Sanidine; a white transparent variety of orthoclase. (Power)

Ice stream. A glacier; also a collection of floes moving in a certain course (Webster). An ice river.

Ice system. A system of glaciers diverging from a common center. (Standard)

Ice table. A mass of level ice. (Standard)

Ice ton. The theoretical number of heat units required to melt one ton of ice at 32° F. It is 284,000 B. T. U., taking the ton at 2,000 pounds, or 318,080 B. T. U. for a ton of 2,240 pounds. (Webster)

Ice tongue. A steep, narrow cliff of ice, rising high above glacial névé, and extending upward toward the higher mountain peaks. (Standard)

Ice wall. *See* Ice foot.

Ice worn. Abraded by ice; specifically, rubbed, scratched, or channeled by glacial action. (Standard)

Ichnite. A fossil footprint. (Webster)

Ichnolite. A fossil footprint or the stone containing it. (Standard)

Ichnology. The science which treats of the footprints of extinct animals. (Emmons)

Icosinene. A liquid hydrocarbon ($C_{20}H_{38}$) contained in ozocerite. (Standard)

I. D. B. (Africa) Illicit diamond buyer. (Morrison)

Ideal form. A crystal form in which like faces are of the same size and shape. (A. F. Rogers)

Idiogenites. A term suggested by Posepny to describe those ore deposits which are contemporaneous in origin with the wall rock. The word means of the same origin. *Compare* Xenogenite, Hysterogenite. (Kemp)

Idiogenous. Said of deposits contemporaneous in origin with the rocks in which they occur, *i. e.*, primary deposits which are constituents of the rocks in which they occur. (Power)

Idiomorphic. In petrology, bounded by the crystal faces proper to itself; euhedral; automorphic: said of some crystals in an igneous rock and opposed to Allotriomorphic. (La Forge)

Idiophanous. Exhibiting interference figures in crystals without the aid of the polariscope. (Webster)

Idler. A sheave or pulley running loose on a shaft to guide or support a rope. (C. M. P.)

Idle wheel. A pulley to guide a driving belt, to increase its tension, or to increase its arc of contact on one of the working pulleys. (Standard)

Idocrase. *See* Vesuvianite.

Idria furnace. *See* Leopoldi furnace.

Idrialite. A dark earthy mineral, consisting of hydrocarbons, mixed with cinnabar, clay, etc., It occurs in Idria, Austria. (Webster)

Idryl. A black material obtained from the mercury condensation-chambers at Idria, which Bödeker considered as the radical of idrialite. (Bacon)

Ígneo (Sp.). Igneous. (Dwight)

Igneo-aqueous. Formed by the joint action of fire and water. Thus ashes thrown from a volcano into water and there deposited in a stratified form might properly be said to be of igneo-aqueous origin. (Century)

Igneous. In petrology, formed by solidification from a molten state: said of the rocks of one of the two great classes into which all rocks are divided, and contrasted with Sedimentary (La Forge). Rocks formed in this manner have also been called plutonic rocks, and are often divided for convenience into *plutonic* and *volcanic* rocks, but there is no clear line between the two. (Webster)

Igneous fusion. Fusion unassisted by the solution in the water of crystallization as in the case of anhydrous substances. Opposed to aqueous fusion. (Webster)

Ignescent. A stone or mineral that gives out sparks when struck with steel or iron. (Standard)

Igniter. 1. A metal case containing an ordinary fuse at one end with a number of instantaneous fuses branching out from the other end and leading to as many holes to ignite blasting charges. (Webster)
2. A device to relight safety lamps internally by friction. One type uses a waxed strip with igniting matches at intervals, while another type has a small burred wheel operating against a piece of cerium or something of a similar nature. Electrical devices are sometimes employed.

Ignites. A word used by M. E. Wadsworth to include all pyrotechnic minerals. (Power)

Ignition. 1. The act of igniting, or the state of being ignited. 2. Percussion material or detonating powder. (Standard)

Ignition charge. A small charge of black or other easily ignited powder, used with the main charge of smokeless or other slow-igniting powder to receive ignition from the primer, thus expediting the main charge. (Webster)

Ignition tube. A small, hard glass tube for examining the behavior of substances when heated. (Webster)

Ijadas (Mex.). 1. An assay; samples of two to five pounds. 2. An early term (1565) for jade. (Halse)

Ijolite. A granitoid, nephelite rock, occurring in Finland and corresponding in mineralogy to the nephelinites. It contains chiefly nephelite and pyroxene. The name is derived from the Iijoki river, Finland, and was given by Ramsay and Berghell. (Kemp)

Ilesite. A hydrous sulphate of manganese, zinc, and iron found in friable crystalline aggregate in Park County, Colorado. (Century)

Ill air (Scot.). Noxious gas, as from underground fires or choke damp; a stagnant state of the atmosphere underground. (Barrowman)

Illinition. A thin crust of extraneous matter formed on minerals. (Standard)

Illiquation. The melting of one substance into another. (Standard)

Ilmenite; Menaccanite. Iron-titanium oxide, $FeTiO_3$. Contains 36.8 per cent iron and 31.6 per cent titanium (52.7 per cent TiO_2) (U. S. Geol. Surv.). Is sometimes prefixed to those rocks which contain enough of the mineral to receive attention as ores; thus ilmenite-gabbro, ilmenite-norite, etc. (Kemp)

Ilvaite; Lievrite; Yenite. A mineral, $CaFe_2(FeOH)(SiO_4)_2$, occurring in prisms, with prismatic faces vertically striated. Columnar or compact massive. Fracture uneven. Brittle. Luster submetallic. Color iron-black or dark grayish black. Streak black, inclining to green or brown. Opaque. (Dana)

Imán (Sp.). Magnet; *Piedra imán*, lodestone. (Dwight)

Imbibición (Sp.). Desilverizing rich ores, lead matte, etc., in a bath of molten lead. (Halse)

Imbrex. 1. A curved tile; a pantile. 2. One of the scales or partitions of overlapping tilework or of other imbrication. (Standard)

Imbricate structure. *See* Distributive fault.

Imlay table. *See* End-bump table.

Immersed bog. In geology, a bog which increases by various plant-accumulations and growths under water (Standard). *Compare* Emerged bog.

Impact screen. A type in which the screen moves with the load of material, bringing up against a stop so as to throw the material forward on it. The Imperial screen is a common type. (Liddell)

Impalpable. Extremely fine, so that no grit can be perceived by touch. (Webster)

Impastation. 1. In ceramics, the act or process of converting into paste. 2. A combination of different materials baked together or united by a cement: said of porcelain, etc. (Standard)

Imperial screen. An oscillating or vibrating screen on which the ore is thrown upward, as well as moved forward on the screen. (Liddell)

Imperial yellow porcelain. A Chinese hard porcelain having a uniform yellow glaze, originally made exclusively for the imperial family and others connected with the court. (Standard)

Impervious. Impassable; applied to strata such as clays, shales, etc., which will not permit of the penetration of water, petroleum or natural gas. (Roy. Com.)

Impervious bed. A bed or stratum through which water will not move under ordinary hydrostatic pressure. (Meinzer)

Implosion. A bursting inward; sudden collapse; opposed to *explosion*. (Standard)

Impound. 1. To collect (water) as by damming a stream for irrigation purposes, or the like. 2. A reservoir for water, as one made by damming a stream (Webster). Used in connection with the storage of tailings from ore-dressing plants and hydraulic mines.

Impregnated. Containing metallic minerals, scattered or diffused through the mass. Properly used in referring to country rock containing mineral similar to that in the vein. (Weed)

Impregnation. An ore deposit consisting of the country-rock impregnated with ore, usually without definite boundaries. (Raymond)

Improvement. As used in the mining statutes, is an artificial change of the physical condition of the earth upon or reasonably near a mining claim as to evidence a design to discover mineral therein, or to facilitate its extraction. It must be reasonably permanent in character (Frederick *v.* Klauser, 52 Oregon, p. 116). *See also* Labor and improvement.

Impsonite. An asphalt found in Oklahoma much like albertite but almost insoluble in turpentine. (U. S. Geol. Surv.)

Impuesto minero (Mex.). The tax paid on mining claims. (Dwight)

Impulse. A force communicated suddenly; the effect of an impelling force; a thrust; a push. (Century)

In (Eng.). When a stall or other working place in a mine is blocked up with fallen roof, etc., it is said to be *in*, or to have come in. (Gresley)

Inalterable. Unaffected by the action of light or air: applied to painted porcelain, faience, or enamel, the colors of which have been fired. (Standard)

Inaurate. Having a golden luster. (Standard)

Inbond. Laid with its length across the thickness of a wall: said of a brick or of a long stone. (Standard)

Inby; Inbye; Inbyeside (Newc.). Toward the working face, or interior, of the mine. Away from the shaft or entrance. Also called In-over.

Incandescent. Made luminous by heat; white or glowing with heat. (Standard)

Inches of pressure. The height in inches of a column (1) of water, or (2) of mercury, as a measure of hydrostatic pressure. (Standard)

Inch-pound. A unit of work, being the work done by raising one pound through an inch. (Century)

Incinerate. To burn to ashes; to consume by fire; to cremate. (Webster)

Incinerator. A furnace or oven for incinerating substances, as refuse. (Webster)

Incised ware. Pottery decorated with scratches; graffito. (Standard)

Inclinación (Sp.). Hade; dip; inclination; slope. (Lucas)

Inclination. The *dip* of a vein measured from the horizontal. (Skinner)

Incline. **1.** A shaft not vertical; usually on the dip of a vein. *See also* Slope. (Raymond)
2. Any inclined plane, whether above or beneath the surface. Usually applied to self-acting planes above ground, as in the bituminous coal fields. (Steel)

Incline bogie (Scot.). A wheeled carriage for inclines, constructed with a horizontal platform so that cars can be run on it and be conveyed up and down the incline or slope. (Barrowman)

Inclined cut-and-filling. *See* Rill stoping.

Inclined plane. A natural or artificial slope used for facilitating the ascent, descent or transfer from one level to another of vehicles or other objects (Standard). *See also* Incline, 2.

Inclined shaft. *See* Incline, 1.

Inclinometer. **1.** A dipping compass. **2.** An instrument for measuring inclination or slope, as of the ground or of an embankment; clinometer. (Standard)

Inclusion. **1.** In petrology, a crystal or fragment of another substance; or a minute cavity, filled with gas or liquid, inclosed in a crystal. **2.** A fragment, of whatever size, of another rock inclosed in an igneous rock; a xenolith. (La Forge)

Incompetent. In geology, not combining sufficient firmness and flexibility to transmit a thrust and to lift a load by bending; consequently, admitting only the deformation of flowage: said of strata and rock structure. *See also* Competent, 1. (Standard)

Incorporadero (Mex.). The place where the *incorporo*, in the patio process, is effected. (Dwight)

Incorporar (Sp.). In amalgamation, to add the first charge of quicksilver. The term *cebar* is applied to the adding of subsequent charges; it also means the act of thoroughly mixing the quicksilver, with *torta* of wet ore. (Min. Jour.)

Incorporo (Mex.). The adding and mixing of mercury and other ingredients for the *patio* process. (Dwight)

Incrustation. 1. A crust or hard coating of anything upon or within a body, as a deposit of lime inside a steam boiler. (Webster)
2. A method of ornament that consists in applying or in inlaying one (usually a finer) material upon another, as colored marbles, mosaics, lacquers, or enamels upon wood, stone, or metal; also the material so applied. (Standard)

Indagación (Sp.). Search; examination. (Halse)

Index fossil. A genus or species of fossil which is peculiar to, or characteristic of, a geological horizon or zone. (Webster)

Index of refraction. A number which expresses the ratio of the sine of the angle of incidence to the sine of the angle of refraction. (Webster)

Index plane. A surface of any bed, dike, or vein, which may be regarded as a plane and used as a base for measurement of fault movements. (Farrell)

India. A remarkably fast-cutting, long-wearing oilstone made from alundum. (Pike)

India-cut. In lapidary work, a cut approximately in the form of a brilliant, but done in such a way as to retain as much weight as possible. India-cut stones are clumsy and are usually recut for Western markets. (Webster)

Indiana furnace. A simple Belgian zinc furnace in which the gas is fired under the lowest row of retorts. (Ingalls, p. 474)

Indianaite. A kind of white clay from Lawrence County, Indiana, used in making porcelain. (Century)

Indianite. A variety of anorthite occurring as the gangue of corundum at the Carnatic, India. (Century)

Indian ocher. A native Indian red, principally of Fe_2O_3.

Indian pipestone. *See* Catlinite.

India steel. A fine natural steel from southern India made direct from the ore; wootz. (Standard)

Indicated horsepower. That horsepower which is calculated from indicator-diagrams, as distinguished both from that which is measured by a dynamometer and from nominal horsepower. (Standard)

Indicated power. *See* Indicated horsepower.

Indicator. 1. An instrument for showing at any moment the position of the cage in the shaft. 2. An instrument for recording, by a diagram, upon a card the varying pressure of the steam in the cylinder of a steam-engine during the stroke. (Raymond)
3. An apparatus for showing the presence of firedamp in mines, the temperature of goaves, the speed of a ventilator. (Steel)
4. (Aust.) One of a group of narrow pyritiferous seams, the intersections of which with the auriferous quartz veins of the district are usually characterized by rich accumulations of gold. 5. A substance used in chemistry to indicate to the eye, usually by its capacity for color change, the condition of a solution as to the presence of free acid, alkali, or other substance. (Webster)

Indicator card, or diagram. A diagram showing the variation of steam pressure in the cylinder of an engine during an entire stroke or revolution. (C. and M. M. P.)

Indicator vein. A vein which is not metalliferous itself, but, if followed, leads to ore deposits (Duryee). *See also* Indicator, 4.

Indicolite. An indigo-blue variety of tourmaline. (Dana)

Indigo copper. Covellite. (Dana)

Indium. A soft, white, malleable, and easily fusible metallic element found combined, in very small quantities, in many ores, especially zinc blende. Symbol, In; atomic weight, 114,8; specific gravity 7.2. (Webster)

Individual coal car. One owned or leased by a coal operator, and not by the transportation company. These cars have painted on their sides the names, initials, or some chosen trade-mark or emblem of their owners, and are run for their exclusive benefit. They are generally used between the mines and the coastwise shipping ports of the various railroads. (Nicolls)

Indoor (Eng.). Toward the inside of a cylinder; as, the *indoor* stroke of a piston (Standard). *See also* Indoor stroke.

Indoor catches. Strong beams in a Cornish pump, to catch the walking beam in case of accident and prevent damage to the engine itself. (Gresley)

Indoor stroke (Eng.). That stroke of a Cornish pump which lifts the water at the bottom or drawing lift. (Gresley)

Indraft; Indraught. The act of drawing in, or that which is drawn in; an inward suction or flow; as, an *indraft* of air. (Standard)

Induction. The production of magnetization or electrification in a body by the mere proximity of magnetized or electrified bodies, or of an electric current in a conductor by the variation of the magnetic field in its vicinity. (Standard)

Induction balance. An apparatus for measuring changes of conductivity, detecting the proximity of metallic bodies, etc., by noting extremely minute changes in an electric current. (Standard)

Induction coil. An apparatus for generating currents by electromagnetic induction. (Standard)

Induction-pipe, -port, or -valve. The pipe, port or valve through which the live steam or other motive fluid passes to the cylinder of an engine. (Standard)

Indurated. Hardened; applied to rocks hardened by heat, pressure, or the addition of some ingredient not commonly contained in the rock referred to, as, marls indurated by calcium carbonate. (Roy. Com.)

Indurated talc. An impure, hard, slaty variety of talc (Standard). Called also Talc slate

Infection. Communication of disease, as by contact or through the medium of air, water, or clothing: distinguished from *contagion* (Standard). Important in accident and first-aid work.

Infilling. Material used for filling in; filling. (Standard)

Infiltration. 1. The deposition of mineral matter among the grains or pores of a rock by the permeation or percolation of water carrying it in solution. (Roy. Com.)
2. The material filling a vein as though deposited from a solution in water. (Standard)

Infiltration theory. The theory that a vein was filled by the infiltration of mineral solutions. (Raymond)

Infiltration vein. A vein that has been filled by percolation of hot solutions, often alkaline, laterally or from below. (Standard)

Inflammable. Readily inflamed, in any sense; easily set on fire; as, an *inflammable* gas. (Standard)

Influent stream. A stream whose upper surface stands higher than the water table in the locality through which it flows, and which is not separated from the water table by any impervious bed. (Meinzer)

In fork (Eng.). When pumps are working after the water has receded below some of the holes of the windbore, they are said to be *in fork.* (Gresley)

Informe (Mex.). Report. (Dwight)

Infraglacial. Pertaining to, derived from, or caused by processes taking place under, or at the bottom of, glaciers or glacial sheets; sub-glacial. (Standard)

Infragranitic. Situated or derived from sources below granitic beds; as, an *infragranitic* origin. (Standard)

Infralias. Same as Rhaetic beds. (Standard)

Infralittoral. In geology, below the region of littorial deposits. (Webster)

Inframundane. Situated below the earth's surface. (Standard)

Infusorial earth; Diatomaceous earth; Tripolite. An earthy substance or soft rock composed of the siliceous skeletons of small aquatic plants called diatoms (U. S. Geol. Surv.). (A former and common, but incorrect usage. Properly Diatomaceous earth.) Useful as an absorbent of nitroglycerin. Called also Infusorial silica and Fossil flour, and in special forms Rottenstone and Electro-silicon; Kieselguhr.

Ingate. 1. An opening in a mold through which melted metal enters in casting; a gate. 2. The point of entrance from a shaft to a level in a coal mine. (Standard)

Ingaun e'e (Ingoing eye) (Scot.). A drift or mine starting from the surface of the ground; also the end of the mine at the surface. (Barrowman)

Ingeniero (Sp.). Engineer; *E. civil*, a civil engineer; *E. de minas*, a mining engineer. (Halse)

Ingenio (Peru). 1. Engine. 2. A crude ore-mill, used in *patio* amalgamation. 3. (Mex.) An amalgamating mill, driven by a water wheel *below* the grindstones. *See also* Injenio. (Dwight)

In-going. That which is going inby. (Gresley)

Ingot. A cast bar or block of metal. (Raymond)

Ingot iron. A malleable, nonhardening product of the Bessemer or open-hearth process. Called also Mild steel and Cast steel. (Standard)

Ingot mold. A mold in which to cast ingots. (Standard)

Ingrain (Eng.). A portion of coal given above the quantity purchased for good measure: usually a quarter-chaldron added to five chaldrons. (Standard)

Inhaler. Something from or through which one inhales; specifically, an appliance or apparatus of different forms and uses, as, for taking the chill from the air before it reaches the lungs; for filtering out iron-dust or other injurious substances from the air breathed through it; for administering medicines by inhalation or, for supplying fresh air to a diver or miner. (Standard)

Injection theory. The theory that a vein was filled first with molten mineral. (Raymond)

Injector. A device for injecting feed water into a steam boiler by the direct action of live steam. (Webster)

Injenio (Peru). A horizontal water wheel and Chilean mill combined. *See also* Ingenio. (Pfordte)

Injunction. A judicial order or process, operating upon the person, requiring the party to whom it is directed to do or (usually) refrain from doing some designated thing. (Standard)

Ink stone. Same as Copperas or Green vitriol. (Standard)

Inlet. A bay or recess, as in the shore of a sea, lake or river; a narrow strip of water running into the land or between islands. (Webster)

Inlier. An older deposit exposed by the removal of a portion of an overlying stratum.

Inmost. Being at a point, place, or position farthest from the exterior; deepest within; innermost; as, the *inmost* depths of a mine. (Standard)

In-over; In-o'er. Same as Inby.

In place. Said of rock, occupying, relative to surrounding masses, the position that it had when formed (Raymond). *See* In situ. If an ore body is continuous to the extent that it may maintain that character, then it is 'in place.' (Iron Silver Mining Co. *v.* Cheeseman, 8 Fed. Rept., p. 301)

Inquartation. *See* Quartation.

In re (L.). In the matter of; used especially in legal phaseology. (Century)

Insalmoro (Sp.). Salting the *torta*. (Egleston)

Insequent. In geology, developed on the present surface but not consequent on nor controlled by the structure; said of streams, drainage, and dissection of a certain type. (La Forge) A type of drainage in which young streams flowing on a nearly level plain wander irregularly. (Lahee, p. 338)

Inset (Eng.). The entrance to a mine at the bottom or part way down a shaft where the cages are loaded. A landing. (Gresley)

Inside. A term often used to designate the interior of a mine.

Inside foreman, or Superintendent. An underground foreman or superintendent.

Inside parting. A side track or parting some distance from the beginning of a long entry, at which cars are left by a gathering driver. Also called a Swing parting. (Steel)

Inside slope. A slope on which coal is raised from a lower to a higher entry, but not to the surface. (Steel)

In situ. In its natural position or place; said specifically, in geology, of a rock, soil, or fossil, when in the situation in which it was originally formed or deposited (Webster). *See* In place.

Inspan (So. Afr.). To harness or yoke up animals. (Standard)

Inspector. One employed to make examinations of and to report upon mines and surface plants relative

to compliance with mining laws, rules and regulations, safety methods, etc. State inspectors have authority to enforce State laws regulating the working of the mines.

Inspirator. A kind of injector for forcing water by steam. *See* Injector. (Webster)

Inspissated. Thickened as by evaporation and oxidation, as for example the pitch or gum resulting from petroleum after long exposure. (Roy. Com.)

Installment bond. An interest-bearing bond payable, principal and interest, in equal annual installments. (E. B. Skinner, p. 140)

Instratified. Same as Interstratified. (Standard)

Instroke. The right to take coal from a royalty to the surface by a shaft in an adjoining royalty. A rent is usually charged for this privilege. (C. and M. M. P.)

Instrumentos (Sp.). Instruments; tools. (Min. Jour.)

Insufflator. A kind of injector for forcing air into a furnace. (Webster)

Insulate. To separate from conducting bodies by means of nonconductors, as to prevent transfer of heat or electricity. (Webster)

Insulator. 1. A nonconducting substance or body used in insulating electric wires, etc. (Webster)
2. A substance that is a nonconductor of electricity, heat, or sound. (Standard)

Intake. 1. The passage by which the ventilating current enters a mine. *See* Downcast, which is more appropriate for a shaft; Intake for an adit, or entry. (Raymond)
2. The air current moving toward the interior of the mine. 3. In hydraulics, the point at which water is received into a pipe or channel. (Century) The suction pipe for a pump.
4. (Scot.) One who works underground at odd work. (Gresley)

Intake area. That part of the surface of the lithosphere where water passes into the lithosphere on its way to the zone of saturation. (Meinzer)

Intendencia (Mex.). An official district. (Dwight)

Intendente (Sp.). 1. Superintendent, overseer, chief. (Hanks)
2. A public officer in charge of the public treasury of a province. (Halse)

Interbedded. Occurring between beds, or lying in a bed parallel to other beds of a different material; interstratified. (Webster)

Intercalary. Inserted or coming between others; introduced or existing interstitially; as intercalary beds in geology. (Century)

Intercalate. To insert among others as a bed or stratum of lava between layers of other material; to interstratify. (Webster)

Intercepts. In crystallography distances cut off on axes of reference by planes. (A. F. Rogers)

Intercolline. Placed between hills: applied specifically in geology to depressions between the cols and crateriform hillocks of volcanic regions (Standard). *See also* Col.

Interés (Sp.) Interest. (Halse). *I. del oro* (Mex.), the greatest sale value of gold. (Lucas)

Interestuarine. Situated between two estuaries. (Standard)

Interfacial angle. In crystallography, the internal diahedral angle between any two faces of a crystal or a crystal form. (La Forge)

Interfelted. So intimately forced together by pressure and heat as to produce interlocking of structure along contiguous surfaces: said of different kinds of strata. (Standard)

Interference color. Colors produced by the destruction or weakening of certain wave lengths of a composite beam of light by interference. An important element in the determination of minerals in thin section under the polarizing microscope. (Webster)

Interference figure. A system of colored rings and curves combined with black bars and curves seen when a thin section of a mineral is examined in a certain way through the microscope or other suitable optical instrument. The interference figure is due to birefringence (*which see*), and is one of the most useful optical aids in identifying minerals. (Ransome)

Interfluent. Applied to those igneous magmas which discharge from a volcano by way of subsurface cavities within the cone. *See also* Superfluent and Effluent. (Dana)

Interfluve. The territory intervening between two neighboring rivers. (Standard)

Interglacial. Of, pertaining to, or designating, a comparatively warm epoch occurring between two glacial epochs. (Webster)

Intergrowth. The interlocking of crystals due to their crystallizing at the same time and in contact with one another. (George)

Interjointal. Situated or occurring between joint planes of rocks. (Standard)

Interleaved. Lying in seams between layers of rock. (Standard)

Interlobate. Situated between lobes; specifically in geology lying between adjacent glacial lobes, as deposits. (Century)

Interlocking tile. Roofing tile having ridges and grooves which interlock when the tile are laid on the roof. (Ries)

Intermine. To intersect or penetrate with mines. (Webster)

Intermontane. Lying between mountains. (Century)

Internal-combustion. Designating or pertaining to any engine in which the heat or pressure energy necessary to produce motion is developed in the engine cylinder, as by the explosion of gas. (Webster)

International metric carat. *See* Carat, 3.

Interpenetration twins. Two or more crystals in twinned position which penetrate each other. (Butler)

Interrupter. In electricity, a device for rapidly and frequently breaking and making an electric circuit, as in an induction coil. (Standard)

Intersecting vein. A vein or lode which cuts across one of earlier formation. (U. S. Min. Stat., pp. 586, 592)

Intersertal. In petrology, having the later-formed minerals, and the rock glass, if there is any, filling the interstices in a network of crystals of the earliest-formed mineral: said of the texture of some diabases and coarse-grained basalts. (La Forge)

Interstice. An opening in anything or between things; especially, a narrow space between the parts of a body or things close together; a crack; crevice; chink; cranny. (Standard)

Interstitial. Of, pertaining to, existing in, or forming an interstice or interstices. (Standard)

Interstitial deposits. Deposits that fill the pores of rocks, and frequently used in place of impregnation deposits. (Eng. and Min. Jour., vol. 75, p. 257)

Interstratification. The state of lying between other strata: in geology, the condition of a bed, stratum, or member of an aqueous deposit with reference to the overlying and underlying beds. (Century)

Interstratified. Interbedded; strata laid between or alternating with others. (Roy. Com.)

Interstrial. Between striæ. (Standard)

Intertrappean. Lying between beds of trap. (Standard)

Interveined. Intersected with or as with veins. (Standard)

Interventor. **1.** (Sp.). A mine inspector, representing the interests of the proprietors by whom he is appointed. (Min. Jour.) *See* Fee engineer. **2.** (Mex.) A trustee or receiver for a mine in dispute. (Dwight)

Into the house (Newc.). The upstroke of a pumping engine. (Min. Jour.)

Into the solid; On the solid. Said of a shot which goes into the coal beyond the point to which the coal can be broken by the blast. (Steel)

Intraformational. Formed by, existing in, or characterizing the interior of a geological formation. (Standard)

Intramontane. Situated or acting within a mountain. (Webster)

Intratellural. In geology, same as Intratelluric. (Standard)

Intratelluric. Taking place deep within the earth. For example, the large phenocrysts of a porphyry are usually of intratelluric crystalization. (Kemp)

Intrusion. In geology, a mass of igneous rock which, while molten, was forced into or between other rocks. (La Forge)

Intrusion displacement. Faulting coincident with the intrusion of an igneous rock. (Ransome)

Intrusive. In petrology, having, while molten, penetrated into or between other rocks, but solidifying before reaching the surface: said of certain igneous rocks; nearly the same as Plutonic and contrasted with Effusive or Extrusive. (La Forge)

Intumesce. To enlarge or expand with heat; to swell or bubble up, as before the blowpipe. (Webster)

Invasión (Mex.). A mining trespass. (Dwight)

Inversion. The folding back of strata upon themselves, as by the overturning of a fold, in such a manner that the order of succession appears to be reversed. (Webster)

Inverted siphon. A pipe or tube in the shape of a siphon, but inverted, as for carrying water across the depression of a ravine to a lower level. (Standard)

Investment. The act of investing or laying out money productively, or converting capital, especially in a permanent manner; also, the money or capital so invested, or the property invested in. (Standard)

Inwalls. The interior walls or lining of a shaft furnace. (Raymond)

Inwan (Scot.). Inward. (Barrowman)

Iodargyrite. *See* Iodyrite.

Iodine. A nonmetallic element of the halogen group, isolated as a shining blackish-gray crystalline solid of peculiar chlorine-like odor. Symbol, I; atomic weight, 126.92; specific gravity, 4.94. (Webster)

Iodite. Same as Iodyrite. (Standard)

Iodyrite. Silver iodide, AgI. Contains 46 per cent silver. Occurs as a mineral. (U. S. Geol. Surv.)

Iola furnace. A natural-gas-fired furnace used at Iola, Kans., for the distillation of zinc. It is a direct adaptation of the Hegeler furnace. (Ingalls, p. 475)

Iolite. *See* Cordierite.

Ion. One of the substances which appears at the respective poles when a body is subject to electrolysis, that one appearing at the anode being called the *anion*, the other the *cathion*. (Webster)

Ionite. A fossil hydrocarbon found in a more or less impure condition in the lignite of Ione Valley, Amador County, Cal. It has a brownish-yellow color and, while only slightly soluble in alcohol, is completely dissolved by chloroform; it yields a brown, tarry oil on destructive distillation. (Bacon)

Ir á pena (Colom.). To find the pay streak; to touch bottom. (Halse)

Ire (Prov. Eng.). Iron. (Standard)

Irestone. Hard clay slate; hornstone; hornblende. (Raymond)

Iridescence. The exhibition of prismatic colors in the interior or on the surface of a mineral; a play of rainbow colors (Dana). Labradorite and some other feldspars show it. The tarnish on the surface of coal, copper pyrites, etc., is sometimes iridescent.

Iridium. A rare metallic element of the same group as platinum which it much resembles, being silver-white, but harder, brittle, and insoluble in its normal state even in aqua-regia. It is one of the heaviest substances known. Symbol, Ir; atomic weight, 193.10; specific gravity, 22.4. (Webster)

Iridosmine. A natural alloy of iridium and osmium. Analyses show 43 to 77 per cent of iridium, 17 to 49 per cent osmium, and a little rhodium, ruthenium, platinum, iron, and copper. (U. S. Geol. Surv.)

Iris. A transparent rock crystal, especially when it exhibits the colors of the rainbow. (Chester)

Irish buggy. A wheelbarrow.

Irish coal (Local, U. S.). Slate or rock; especially when loaded out of the mine in cars.

Irish diamond. A rock crystal (Webster). *See* Bristol diamond.

Irish dividend. An assessment on mining stock. *Compare* Buck-up.

Irish touchstone. Basalt, the stone which composes the Giant's Causeway. (Webster)

Iron. A silver-white metallic element, malleable and ductile, strongly attracted by magnets, readily oxidized (rusted) in moist air, and attacked by many corrosive agents. Symbol, Fe; atomic weight, 55.84; specific gravity, 7.86. (Webster)

Iron alum. A double sulphate of iron and potassium that occurs native and is then called Halotrichite. Called also Alum-feather. (Standard)

Iron black. Finely divided antimony. (Standard)

Iron brucite. A partly decomposed brucite containing iron. Called also Eisenbrucite. (Standard)

Iron by hydrogen. *See* Reduced iron.

Iron chamber. The reverberatory or charge chamber of a puddling furnace where the metal is heated. (Century)

Iron clad. A kind of furnace for roasting mercury ore. (Webster)

Iron clay. Same as Clay ironstone. (Standard)

Iron earth (Eng.). A black pulverulent compound of peroxide of iron and protoxide of manganese, occurring in veins of ironstone in the crystalline schists. (Page)

Iron flint. An opaque, flintlike ferruginous variety of quartz. (Webster)

Iron froth. A fine spongy variety of hematite. (Power)

Iron furnace. A furnace in which iron is smelted or worked in any way. (Standard)

Iron glance. A variety of hematite; specular-iron. (Power)

Iron gymnite. A red variety of derveylite containing iron. Called also Eisengymnite. (Standard)

Iron hat. *See* Gossan.

Iron jack. In the Missouri zinc region, solid flint rock with disseminated specks of black jack (zinc blende). (Webster)

Iron man. 1. (Eng.) A collier's term for a coal-cutting machine. (Gresley)
2. An iron worker; a manufacturer of iron. 3. (Eng.) A kind of iron ore. 4. A man who handles the rails in track laying. (Webster)
5. An apparatus on wheels for supporting a glass-blower's punty while he is blowing large cylinders, as for window glass. (Standard)

Iron-master. One who conducts or manages the founding or manufacture of iron on an extensive scale. (Webster)

Iron mica. A micaceous hematite. (Chester)

Iron mold (Eng.). A yellow lump of iron ore found in the chalk deposits. (Webster)

Iron ocher. Oxides of iron. Red ocher is hematite and yellow ocher is the hydrated oxide, limonite.

Iron piler. A laborer who removes iron from cars, sometimes breaks it, and piles and classifies it according to grade. (Willcox)

Iron powder. *See* Reduced iron.

Iron putty. A mixture of ferric oxide and boiled linseed oil, used by mechanics in making pipe joints. (Webster)

Iron pyrite. *See* Pyrite.

Iron-reduction process. *See* Precipitation process.

Iron runner. The spout by which iron flows from the tap hole of a blast furnace. (Willcox)

Iron sand. Sand containing particles of iron ore, usually magnetite.

Iron saw. A circular saw for cutting iron. (Standard)

Iron scale. A film of oxide forming on iron. (Standard) *See also* Forge scale.

Iron shears. 1. A machine for cutting iron plates or bars. 2. A pair of hand shears for cutting sheet iron or iron wire. (Standard)

Iron-shot. Shot with iron; having markings due to iron. Said of certain minerals. (Webster)

Ironsmith. A worker in iron, as a blacksmith. (Standard)

Iron spar. Siderite or chalybite. (Power)

Iron steel. A material formed of iron between steel surfaces, or of steel-coated iron. (Standard)

Ironstone. Any ore of iron from which the metal may be smelted commercially, but usually restricted to stratified ores, especially to clay-ironstone—the ore from which most of the iron of Great Britain is made. (Roy. Com.)

Ironstone blow (Aust.). A ferruginous gossan. (Webster) *See also* Gossan.

Ironstone casing (Aust.). The casing of ferruginous matter, usually auriferous, found abutting on quartz reefs. (Davies)

Ironworker. One engaged in manufacturing iron or ironwork. (Standard)

Ironworks. An establishment for the manufacture of iron or of heavy ironwork. (Standard)

Irrespirable. Not respirable; not fit to be breathed (Standard). Said of mine gases.

Irruption. In geology, the movement of molten rock from a magmatic reservoir to the place where it solidifies: if the molten rock reaches the surface the process becomes *eruption*, but that term commonly includes other phenomena as well. (La Forge)

Irruptive rock. An igneous rock which was forced into or invaded other rocks as molten magma. An intrusive rock. The distinction between *irruptive* and *eruptive* is often disregarded. (Ransome). *Compare* Effusive.

Isbell table. A table with a reciprocating motion in which there is no cross-wash water. The bed of pulp is deep as in a jig, and heavy material goes to the bottom. The concentrates and tailings are then split by means of a cut-out, which can be adjusted vertically to skim at any height desired. The riffles make an angle of about 20° with the line of motion of the table. (Liddell)

Iserin; Iserine; Iserite. Titanic iron sand, or ilmenite, supposed to be isometric in its crystallization. (Standard)

Isinglass. Mica in thin transparent sheets. (Webster)

Isinglass stone. Mica. (Webster)

Isle of Wight diamond. A fine transparent variety of quartz. (Power)

Isobase. In geology, a topographic or imaginary contour line in a map, drawn through a series of points of equal elevation in a topographic surface or line, formerly level, but at present deformed. (Standard)

Isochemic lines. Planes or lines of equal content of phosphorus in any single layer of iron ore. (Winchell)

Isoclinal; Isoclinic. In geology, dipping in the same direction; hence, an isoclinal. (Standard)

Isoclinal fold. In geology a stratigraphic fold whose sides have parallel dips: it may be an anticline or a syncline, and either (1) vertical, (2) overturned, that is, forced over into an oblique position, or (3) recumbent, that is, pushed over into nearly or quite a horizontal position. Called also Carinate folds.

Isocline. In geology, a series of isoclinal strata. An anticline or syncline so closely folded that the rock beds of the two sides or limbs have the same dip. (Webster) Also called an Overturn, or Overturned anticlinal. *See* Monoclinal, 3; *also* Isoclinal fold.

Isodiametric. In crystallography, having the lateral crystal axes equal: said of crystals of the hexagonal and tetragonal systems. (La Forge)

Isodimorphous. In mineralogy, both isomorphous and dimorphous: said of certain groups of minerals. (La Forge)

Isomorphous. In mineralogy, of analogous composition and closely similar crystalline form: said of certain groups of minerals. (La Forge)

Isogeotherm. A line or curved surface beneath the earth's surface through points having the same mean temperature. (Webster) Also called Isogeothermal lines.

Isogonic line. An imaginary line joining places on the earth's surface at which the variation of the magnetic needle from the meridian or true north is the same. (Webster)

Isohalsine. A line connecting points of equal salinity in the waters of the ocean. (Century)

Isohyetal. Marking equality of rainfall. (Century)

Isomagnetic. Designating or pertaining to lines connecting points of equal magnetic force. (Webster)

Isomeric. Composed of the same elements united in the same proportion by weight, but differing in one or more properties owing to difference in structure. (Webster)

Isomeromorphism. Isomorphism between substances having the same atomic proportions. (Century)

Isometric. 1. Characterized by equality of measure. 2. *See* Isometric system.

Isometric system. In crystallography, that system of crystals in which the forms are referred to three equal mutually perpendicular axes. (La Forge)

Isomorphous mixture. A solid solution of two or more isomorphous substances. (A. F. Rogers)

Isoseismic line. An imaginary line connecting all points on the surface of the earth where an earthquake shock is of the same intensity.

Isostasy. General equilibrium in the earth's crust, supposed to be maintained by the yielding or flow of rock material beneath the surface under gravitative stress. (Webster)

Isostatic. Subject to equal pressure from every side; being in hydrostatic equilibrium. (Webster)

Isotherm. A line joining points on the earth's surface having the same temperature at a given time, or the same mean temperature for a given period. (Webster)

Isotope. A group of two or more radio elements occupying the same place in the Periodic table and chemically nonseparable and identical; independent of atomic mass, the nature of the parent element, and the sequence of changes in which they result. *See also* Pseudoisotopy. For discussion *See* Soddy, The Chemistry of the Radio-Elements, Pt. II, p. 5.

Isotropic. Having the same properties in all directions. Said of a medium with respect to elasticity, conduction of heat or electricity, or radiation of heat or light. (Century)

Istrian stone. A marble near Trieste, from which Venice is largely built.

Ita. A Japanese gold-washing board.

Itabirite. 1. A metamorphic rock, first described from Brazil, of schistose structure and composed essentially of quartz grains and scales of specular hematite. Some muscovite is also present. It is a close relative of itacolumite. It was named from Itabira, a place in Brazil. When it crumbles to powder it is called Jacutinga. (Kemp)
2. A specular iron ore. (Dana)

Itacolumite; Flexible sandstone. A variety of metamorphosed sandstone, slabs of which will bend noticeably without breaking. (U. S. Geol. Surv.)

Itaipava (Braz.). A sort of screen used in rapid rivers behind which the rich gold-bearing sands accumulate. (Halse)

Itambamba (Braz.). A plant whose juice is said to help catch fine gold.

Itatli (Mex.). An Aztec name for obsidian. (Halse)

Ivory porcelain. A ware having a surface resembling ivory, produced by depolishing the vitreous glaze.

Ixolyte. An amorphous, hyacinth-red, greasy hydrocarbon mineral which softens at 76° C., and resembles hartite; it is found at Oberhart, near Gloggnitz, Austria. (Bacon)

Ixtajales (Mex.). An earthy oxide of iron, often containing sulphide of silver, or native-silver threads. (Halse)

Iztli (Mex.). A cutting implement made from a flake of obsidian. (Standard)

J.

Jabón. 1. (Sp.) Soap; *J. de montaña*, soapstone or steatite. 2. (Colom.) A slickenside. (Halse)

Jaboncillo (Mex.). Decomposed talcose rock, or hardened clay, generally found in a vein, and sometimes indicating the proximity of rich ore. (Dwight)

Jaca (Braz.). Spots in diamonds. (Halse)

Jacal (Mex.). 1. A hut in which tools and ore are kept. 2. A covering over a shaft to keep out rain; a shaft house. (Halse) Also spelled Xacal.

Jacaranda (Braz.). A wood from which stamp stems are made by natives. (Halse)

Jacinto (Sp.). 1. Hyacinth, a transparent red variety of zircon. 2. Cinnamon stone, a variety of garnet. 3. A dark red quartz. (Halse)

Jack. 1. Zinc blende. *See* Sphalerite (U. S. Geol. Surv.)
2. A jack-screw attached to a pointed pipe and used for holding an electric coal-mining machine in position while at work. Also called a Pipe-jack. 3. A tin bucket with pouring spout in which powder in quantities of 5 to 12½ pounds is carried into the mine. (Steel)
4. (No. of Eng.) A lantern-shaped case made of tin in which safety lamps are carried in strong currents of ventilation. 5. (Scot.) One who works underground at odd work. (Gresley)
6. (Scot.) A narrow dyke usually of igneous rock. (Barrowman)
7. A wooden wedge for separating rocks rent by blasting. (Webster)
8. A rod or post set up in the working room of a mine to which a rope is fastened for the purpose of moving the cutting machine from place to place. (Robinson *v.* Virginia-Pocahontas Coal Co., 88 S. E. Rept., p. 623)
9. (No. of Eng.). A large fissure or crack in the mine roof. (Gresley)

Jackanapes (Eng.). The small guide pulleys of a whim. (Century)

Jackass pick. A pick with a protecting wing to support the helve so that the implement may be used as a lever. (Webster)

Jack engine (Eng.). A donkey engine; a small engine employed in sinking a shallow shaft. (Century)

Jacket. A covering to prevent radiation of heat, as the jacket of a steam boiler; also, a casing around a furnace hearth in which water is allowed to stand or circulate to keep the walls cool. (Raymond)

Jackhammer. A nonreciprocating or hammer type of rock drill worked without a tripod and provided with an automatic rotating device. It uses hollow steel through which the exhaust air passes and blows the cuttings from the drill hole (Bowles). *See* Rock drill.

Jack-head pit. A small shaft sunk within a mine (Raymond). A winze.

Jack-head pump. A subordinate pump in the bottom of a shaft, worked by an attachment to the main pump rod. (Raymond)

Jack-head set (Newc.). The set of pumps in the jack-head staple. (Min. Jour.)

Jack-head staple (Eng.). A small mine for the supply of coal for the boilers. (Bainbridge)

Jack hole (Eng.). In coal mining, a bolt hole (Standard). *See also* Cut-through.

Jack-knifing. A collapsing of square-set timbers by wall pressure or through imperfect erection. (Sanders, p. 68)

Jack lamp (Eng.). A Davy lamp, with the addition of a glass cylinder outside the gauze. (Century)

Jack pipe. A hollow iron pipe large enough to slip over the end of the front jack of a cutting machine so as to make it hold more firmly against the coal. (Morris *v.* O'Gara Coal Co., 181 Illinois App., p. 311)

Jack pit (No. of Eng.). A shallow shaft in a mine communicating with an overcast. (Gresley)

Jack roll. A windlass worked by hand. (Gresley)

Jack setter. A miner who assists in the operation of a coal-cutting machine, one of whose duties is to see that the roof of the mine at or near the machine is in a reasonably safe condition. (Haggard *v.* McGrew Coal Co. (Mo.), 200 S. W. Rept., p. 1072)

Jackshaft. 1. An intermediate shaft. *See* Jack pit. (Standard). A winze. 2. A column or bar held in place by screw jacks to support or steady a rock drill.

Jackshay; Jackshea (Aust.). A tin pot holding a quart. (Webster)

Jacky pit. *See* Jack pit.

Jacobsite. A deep black, magnetic mineral, $(Mn,Mg)O.(Fe,Mn)_2O_3$. Isometric; in distorted octahedrons. (Dana)

Jacob's staff. A single straight rod, pointed and iron shod at the bottom and having a socket at the top; used instead of a tripod for supporting a compass. (Webster)

Jacupirangite. In petrology, a granular plutonic igneous rock of indefinite composition, containing essential magnitite and pyroxene with accessory nephelite, ilmenite, apatite, olivine, etc., in various proportions. (La Forge)

Jacutinga; Jacutings (Brazil). The various colored iron ores associated with and often forming the matrix of the gold in the Brazilian mines. So called from their resemblance to the colors of the plumage of the Brazilian bird *pipile jacutinga.* (Davies) *Compare* Itabirite.

Jad (Som.). 1. A long and deep holing, cutting, or jud, made for the purpose of detaching large blocks of stone from their natural beds. (Gresley)

2. (Prov. Eng.) To undercut (coal or rock). (Standard)

Jadder. A stonecutter. (Webster)

Jadding. The operation of forming a jad (Gresley). *See* Holing; Jad, 1.

Jadding pick. The tool employed to cut a jad. (Gresley)

Jade; Jadite; Nephrite. A hard and extremely tough material of varying composition, greenish white to deep green in color, used in making carved ornaments. Part of the so-called jade is jadeite, a variety of pyroxene, essentially a metasilicate of sodium and aluminum. Part is nephrite, a variety of amphibole, and essentially a metasilicate of iron, calcium, and magnesium; and part is a variety of saussurite, which is commonly a complex alteration product of plagioclase feldspar. Williamsite, a variety of serpentine, is sometimes mistaken for jade. (U. S. Geol. Surv.)

Jadeite. *See* Jade.

Jag bolt. A bolt with a nicked or barbed shank which resists retraction, as when leaded into stone (Webster). Also called Barb bolt.

Jaggers (Derb.). Both men and horses employed to carry ore from the mine to the smelter. Also called Jagger lads and Jagger horses. (Hooson)

Jagging. A mode of carrying ore to the reduction-works in bags on horses, mules, etc. (Raymond)

Jagging board. An inclined board on which ore slimes are washed, as in a buddle. (Standard)

Jagua (Colom.). 1. A fine powder; metalliferous sands in alluvial deposits. (Halse)
2. *Jaguas;* slimes; pulp; tailings; pulverized ore. (Lucas)

Jagüero (Colom.). A vessel for depositing gold-bearing concentrate awaiting final separation. (Halse)

Jailer (Som.). A small tub or box in which water is carried in a mine. (Gresley)

Jales; Jalsontles (Mex.). Rich tailings or middlings from concentration or amalgamation. (Dwight)

Jalón (Mex.). A tall survey-stake; range pole (Dwight). *J. de esquina,* a corner stake. (Halse)

Jalpaite. A lead-gray, cupriferous, argentite, $(AgCu)_2S$, that crystallizes in the isometric system. (Standard)

Jalsontles (Sp.). Portions of ore not properly ground, and which have to be reground. Also the slime or dust from the washing vats in the amalgamation works. (Rockwell)

Jam. *See* Jamb, 2.

Jamb. 1. A vein or bed of earth or stone, which prevents the miners from following a vein of ore; a large block. 2. A projecting columnar part or mass as of masonry; a pillar as of ore. (Webster)

James concentrator. A concentration table, the deck of which is divided into two sections, flexibly joined together on a line oblique to the line of motion of the table. One section contains riffles for the coarse material while the other section is smooth, to allow the settling of the fine particles which will not settle on a riffled surface. By means of the joint, the slope of the sections can be varied independently. (Liddell)

Jamesonite; Feather ore. A sulphide of lead and antimony, $Pb_2Sb_2S_5$. (U. S. Geol. Surv.)

Jam nut. An extra nut used to secure a principal nut; a lock nut. (Standard)

Jam out (So. Staff.). To cut or knock away the coal between holes. (Gresley)

Jamuración (Colom.). Extracting water from a pit. (Lucas)

Jamurar (Sp.). To extract water from a pit. (Lucas)

Jam weld. A weld in which the heated ends or edges of the parts are square-butted against each other and welded. (Century)

Jap. *See* Rock drill.

Jar. 1. To drill by impact, as a rock; to use a drill jar upon. (Standard)
2. *See* Jars.

Jarcia (Mex.). Fabric or cordage of *Ixtle* fiber. (Dwight)

Jargon. 1. A name given to the colorless or smoky zircons of Ceylon. (Standard)
2. An inferior diamond having a yellowish color. (Century)

Jarosite. A hydrous sulphate of iron and potassium from Jaroso, Spain, (Century)

Jars. In well drilling, a connection between the sinker bar and the poles or cables, made in the form of two links, that slide on each other from 6 to 36 inches. The jars permit the tools to fall on the down stroke, but on the up stroke jar them, or give them a sharp pull tending to loosen them from any crevices or cavings that may hold them; a drill jar. (Nat. Tube Co.)

Jaspachate; paspagate. Agate jasper. (Webster)

Jaspe (Mex.). Jasper; *J. negro,* Lydian stone, touch stone. (Halse)

Jasper. Red, brown, green, impure, slightly translucent cryptocrystalline quartz with a dull fracture (U. S. Geol. Surv.). Red chalcedony, abundant enough on Lake Superior and elsewhere to be a rock (Kemp). *Compare* Taconyte.

Jasperated. Mixed with jasper; made to resemble jasper; as, *jasperated* agate; *jasperated* glass. (Standard)

Jasperite. Same as Jasper. (Standard)

Jasperize. To convert into a form of silica like jasper; agatized. (Century)

Jasperoid. Resembling jasper. (Century)

Jasper opal. A yellow variety of opal resembling jasper. (Webster)

Jasper ware. A white ferra-cotta or porcelain bisque invented by Josiah Wedgewood for use in his cameo-ware: also used for jewelry setting and statuettes. Also called Cameo-ware; Wedgewood-ware. (Standard)

Jasper wash. A dip invented by Josiah Wedgewood in 1777, and used by him to produce the effect of jasper on pottery. (Standard)

Jaspidean. Consisting of or containing jasper; like jasper. (Standard)

Jaspilite. A term used around Lake Superior for the jasper associated with the iron ores. It is made up of bands of bright-red jasper alternating with bands of black, commonly specular hematite. (U. S. Geol. Surv.)

Jaspoid. Resembling jasper. (Standard)

Jasponyx. An onyx part or all of whose layers consist of jasper. (Webster)

Jaspopal. *See* Jasper opal.

Jaspure. Marble veined, or colored like jasper. (Webster)

Jaula (Sp.). 1. Drum of a horse-whim. *J. de extracción*, hoist, cage; *J. de seguridad*, a safety cage. (Halse)

Jaulingite. A resin found in the Jauling, near St. Viet, Lower Austria; it resembles succinite. (Bacon)

Jaum (Derb.). A clay-filled joint extending diagonally across a vein. (Hooson)

Jaw crusher. A machine in which rock is broken by the forcing together of iron jaws. (Richards, p. 1200)

Jay (Derb.). Roof coal. (Gresley)

Jedding ax. A kind of stone mason's ax with a flat face and a pointed peen. (Webster)

Jeffersite. A kind of vermiculite from West Chester, Pennsylvania. (Century)

Jeffrey swing-hammer crusher. A crusher enclosed in an iron casing in which a revolving shaft carries swinging arms having a free arc movement of 120°. The rotation of the driving shaft causes the arms to swing out and strike the coal, ore, or other material, which, when sufficiently fine, passes through the grated bottom. (Liddell)

Jellettite. A green variety of andradite garnet. (Standard)

Jenkin (No. of Eng.). A variation of junking.

Jerry (Aust.). A carbonaceous shale found in coal seams. (Power)

Jerry faces (Aust.). A local name at Lambton B. colliery for main cleats in coal. (Power)

Jerryman. An employee in a mine whose duty it is to clean up falls or refuse, or to make a miner's working place safe. (Peabody-Alwerd Coal Co. *v.* Yandell, 179 Indiana, p. 227; Hartig *v.* Vandalia Coal Co., 98 N. E. Rept., p. 132)

Jeso. Beds of decomposed gypsum. (Standard)

Jet. 1. A dense black lignite, taking a good polish. Sometimes used for jewelry. (U. S. Geol. Surv.)
2. A black marble. (Webster)

Jet coal. Cannel coal.

Jet glass. Crystal glass of pure black, used in cheap jewelry. (Century)

Jet pump. A pump which moves fluid by bringing it in contact with a rapidly moving stream of a fluid, of the same or different kind, the motion being imparted through friction. Injectors and aspirators are pumps of this type. (Meinzer)

Jet rock. Rock or shale, containing jet. (Standard)

Jetstone (N. S. W.). Black tourmaline. (Power)

Jetters (Corn.). The horizontal rods or poles connecting the water wheel and the pumps. (Davies)

Jewel. A precious stone; a stone cut and polished for use as an ornament; a gem; a bearing for a pivot in a watch formed of a crystal or precious stone. (Webster)

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Jeweler's shop (Aust.). A very rich patch of gold in either a reef or an alluvial formation. (Power)

Jews' houses. Remains of ancient tin smelting furnaces and miners' houses in Cornwall, England. (Webster)

Jews' pitch. A name given to a semi-solid form of bitumen formerly used for medicinal purposes. (Mitzakis)

Jews' tin. Slabs of tin found near the Jews' houses in Cornwall, England. (Webster)

Jewstone. 1. Marcasite. **2.** (Eng.) A hard rock of uneven fracture; applied locally to certain basalts, limestone, etc. (Webster)

Jhoras (India). A gold-washing caste. (Lock)

Jig. 1. A machine or apparatus in which ore is concentrated, or coal is separated from slate, on a screen or sieve in water by a reciprocating motion of the screen, or by the pulsion of water through the screen.
2. To separate heavier from lighter materials, as ore from gangue, coal from slate, by agitation in water. (Webster)
3. (Eng.) A self-acting incline (Steel). A jinny road.
4. In well boring, to drill with a spring pole. (Century)

Jig brow. *See* Jimmy road.

Jig chain (So. Staff.). A chain hooked to the back of a skip and running round a post, to prevent its too rapid descent on an inclined plane (Raymond). *Compare* Snub, 2.

Jigger. 1. A workman who sorts or cleans ore by the process of jigging. (Webster)
2. A machine for dressing small ore in which a sieve is dipped or moved about under water (Skinner). *See also* Jig, 1.
3. (Scot.) An apparatus for attaching hutches to a haulage rope, which holds by twisting or biting the rope. (Barrowman)
4. (Aust.) A boy who attends to the brake of a jig, 3. (Power)
5. A coupling hook used between coal cars in Leicestershire coal mines. (Standard)

Jigger work (Eng.). Dressed, or partly dressed, ore obtained from jigging. (Hunt)

Jigging (Corn.). Separating ores according to specific gravity with a sieve agitated up and down in water. The apparatus is called a jig or jigger (Raymond). *See* Jig, 1 and 2.

Jigging machine. A machine with which to jig ore. *See* Jig, 1. (Webster)

Jig indicator. An apparatus resembling a steam engine indicator, for drawing curved lines illustrating the action of jigs in ore dressing. (Webster)

Jig pin (Eng.). A pin to hold the turn beams and prevent them from turning. (Webster)

Jig runner. 1. (York.) The man who works a jig, (a self-acting incline). **2.** One who operates a jig for concentrating ore.

Jim-around (West Virginia). A man who does miscellaneous work at mines.

Jim crow. 1. A machine for bending or straightening rails. (Webster)
2. A crowbar with one end clawed like a hammer. (Standard)

Jinny. A stationary engine for hauling on a jinny road, when not operated by gravity. A jinny road. (Webster)

Jinny road. A gravity plane underground. (Raymond)

Jinny tenter. *See* Jig runner, 1; Jinny.

Jito (Mex.). Gate in casting. (Dwight)

Jitty (Leic.). A short heading along which empties, horses, or workmen travel. (Gresley)

Joachimstal process. The extraction of silver from sulphide ores by converting into chloride, leaching with sodium hyposulphite, and precipitating the silver as sulphide with sodium sulphide. (Raymond)

Jock (Scot.). An iron rod, usually pronged, attached to the rear end of a train of hutches or cars being drawn up an incline, to stop their descent in the event of the rope breaking. (Barrowman)

Jockey. 1. (Aust.). A Y-shaped grip placed in sockets at the end of a skip. It is on this that the endless rope rests when used above the skip.
2. (Mid.). A self-acting apparatus on the front of a car, for releasing it from the hauling rope at a certain point. (Gresley)

Joey (Mid.). A man specially appointed to set timber in a stall during the shift. (Gresley)

Joggle. 1. A notch cut in a round timber to prevent rolling when placed on another round piece. (Sanders, p. 115)
2. A joint of trusses or sets of timber for receiving pressure at right angles or nearly so. (C. and M. M. P.)

Joggling table. An inclined board, which moves with a sudden and quick motion, used in washing ore. (Whitney)

John 'Odges. *See* Gun.

Johnston vanner. A vanner in which the chief difference between it and a Frue vanner is that the belt is given an undulating motion to prevent sands from piling up against the edges of the belt. (Liddell)

Johnstrupite. A silicate of the cerium metals, calcium and sodium chiefly, with titanium and fluorine. In prismatic crystals. (Dana)

Joint. 1. In geology, a plane, or gently curved crack or fissure, which is one of an approximately parallel set of fissures ranging from a few inches to many feet apart. Joints occur in rocks of nearly all kinds and generally in two or more sets which divide the rocks into polyhedral blocks. (La Forge)
2. A line of cleavage in a coal seam. (Barrowman)

Joint veins. Small veins confined to one bed of rocks that give no signs of displacement, or at least so slight that they can not be noticed. (Power)

Jointy. Full of joints; specifically, in mining, full of minute cracks or crevices, as rock. (Standard)

Jökull. 1. A glacier. 2. An Ice'ndic mountain, a large portion of which is above the snow line. Also spelled Jolsul; Yokul. (Standard)

Jolly balance. A very delicate spring balance used especially for the determination of densities by the method of weighing in water and air. (Webster)

Jordanite. A sulpharsenite of lead, $4Pbs.As_2S_3$. Monoclinic; often pseudohexagonal by twinning. A lead gray mineral. (Dana)

Joren. A scoop-shaped bamboo basket used in Japan for carrying auriferous gravel. (Lock)

Jornada (or Jornal) (Sp.). 1. Day's work (Dwight). A shift.
2. Day's wages. 3. Daily mineral production by each *peón*. (Halse)

Jornaleros (Sp.). Day laborers. (Min. Jour.)

Jorongo (Sp.). 1. A small basket. 2. A blanket. (Halse)

Joseite. A bismuth-telluride mineral found in Brazil. (Dana)

Josephinite. A native alloy of iron and nickel of the composition Fe_2Ni_5. (Dana)

Jougs; Juggs (Scot.). An iron collar fastened by a short chain to a wall and said to have been put round the neck of disobedient miners in old times as a punishment. (Barrowman)

Joule. 1. A unit of work or energy which is equal to 10^7 ergs, and is practically equivalent to the energy expended in one second by an electric current of 1 ampere in a resistance of 1 ohm. Approximately equal to 0.738 foot-pound. (Webster)
2. The gram-degree centigrade thermal unit; the small calory. (Standard)

Joule's law. 1. The law that the rate at which heat is produced in any part of an electric circuit is measured by the product of the square of the current into the resistance of that part of the circuit. 2. The law that there is no change of temperature when a gas expands without doing external work and without receiving or rejecting heat. (Webster)

Jouph holes (Derb.). Hollows in a vein. (Power)

Journal (Scot.). A record of strata passed through in a bore hole (Barrowman). A log book.

Journey. 1. (So. Wales) A train or set of trams all coupled together running upon an engine plane. (Gresley)
2. The round of work done in converting a quantity of material into glass. (Webster)

Jove. The metal tin. An obsolete term used by alchemists. (Webster)

Jovite. A high explosive consisting of certain nitro compounds and sodium nitrate. Used in armor-piercing shells. (Webster)

Jowl (Newc.). A noise made as a signal, by hammering at the faces of two levels expected to meet. (Raymond)

Juagada (Colom.). Stony, barren deposit. (Lucas)

Juanblanco (Colom.). 1. Platinum found in gold placers. 2. Mica. (Halse)

Jud, Judd. 1. (No. of Eng.). A block of coal about 4 yards square holed and cut ready for breaking down. 2. (Som.) *See* Jad, 1. (Gresley)
3. In whole working, a portion of the coal laid out and ready for extraction; in pillar-working (*i. e.*, the drawing or extraction of pillars), the yet unremoved portion of a pillar. (Raymond)
4. The term jud is also applied to a working place, usually 6 to 8 yards wide, driven in a pillar of coal. When a jud has been driven the distance required, the timber and rails are removed, and this is termed 'drawing a jud.' (C. and M. M. P.)

Judge (Derb. and Newc.). 1. A measuring stick to measure coal work underground. (Raymond)
2. (Eng.) Formerly a boy who proved the holing. (Gresley)

Judge rapper. The upper end of the vertical arm of a judge. *See* Judge, 1. (Gresley)

Juego (Mex.). A set of anything, as a set of repair parts for a machine. (Dwight)

Jugglers. Timbers set obliquely against pillars of coal, to carry a plank partition, making a triangular air passage or manway. (Raymond)

Julgars. An Indian caste whose employment is gold washing. (Lock)

Jumble (Derb.). The place where veins intersect. (Mander)

Jumos (Colom.). Very fine particles of gold found in the *batea* after panning. (Halse)

Jump. 1. (Pac.) *See* Jumping a claim.
2. A dislocation of a vein. (Raymond)
3. (Eng.) To drill a hole for blasting with a jumper. (G. C. Greenwell)

Jumper (Corn. and Newc.). 1. A drill or boring tool, consisting of a bar, which is 'jumped' up and down in the bore hole (Raymond). *See also* Churn drill.
2. One who jumps a claim. *See* 'Jumping a claim.'

Jumping a claim. 1. Taking possession of a mining claim which has been abandoned. 2. Taking possession of a mining claim liable to forfeiture owing to the requirements of the law being unfulfilled. 3. Taking possession a mine or claim by stealth, fraud or force. 4. The location of a mining claim on supposed excess ground within staked boundaries of an existing claim on the theory that the law governing the manner of making the original location had not been complied with.

Jumping switch (Scot.). A self-acting switch, so arranged that the hutches jump through a small vertical distance. (Barrowman)

Jump joint. A butt joint, made by jump welding (Standard). *See* Jump weld.

Jump-up; Jump-down. 1. An up-throw or a down-throw fault. 2. To raise boring rods and allow them to fall by their own weight. (Gresley)
3. (Jump-up) A short rise dug in the roof of a drive. *See* Monkey shaft. (Duryee)

Jump weld. A weld of metal effected by hammering together the butt ends of two pieces heated to the welding point. (Standard)

Junkerite. Same as Siderite. (Century)

Junket (Eng.). *See* Kibble.

Junking (No. of Eng.) An opening cut into, or a narrow slice taken off, a pillar in the room-and-pillar system of working coal (Gresley). A *fast junking* is a narrow place driven lengthwise in a pillar of coal, but unholed into the room on either side of the pillar. A *loose junking* is a similar place driven along the side of the pillar and open to the room along that side. (G. C. Greenwell)

Junta (Sp.). 1. A nearly vertical joint in stratified rocks; *J. de terrenos*, a fault or break in coal beds. 2. A board, congress, assembly, or council. *Juntas* (Mex.), conciliatory meetings called by the mining agents to settle disputes about mining property. (Halse)

Jupiter process. A patented process for making cast-steel by melting wrought-steel scrap with about 2 per cent ferrosilicon up to about 0.5 per cent ferromanganese and about 3 per cent aluminum and casting in molds of a special composition. (Webster)

Jupiter steel. A steel produced by the Jupiter process. It is about as strong and as ductile as forged steel. (Webster)

Juquero (Peru). A thief who takes ore from the vein. (Dwight)

Jurásico (Mex.). Jurassic. (Dwight)

Jurassic. In geology, the middle one of the three periods comprised in the Mesozoic era. Also the system of strata deposited during that period. (La Forge)

Justiceman (Scot.). One who checks, on behalf of the miners, the weight of mineral sent by them out of the mine (Barrowman). *See* Check weighman.

Juvenile water. Water from the interior of the earth which is new or has never been a part of the general system of groundwater circulation. *See* Magmatic water.

Juzgado (Sp.). A court of justice. (Halse)

K.

Kabaite. A hydrocarbon related to ozocerite or scheererite, found in meteorites. (Bacon)

Kackle-meckle (Corn.). The poorest kind of lead ore (Raymond). A variation of Keckle-meckle.

Kain coal (Scot.). Produce of the mine by way of whole or part payment of rent. (Barrowman)

Kainite. A natural salt containing when pure 35.1 per cent potassium sulphate, 24.2 per cent magnesium sulphate, 18.9 per cent magnesium chloride, and 21.8 per cent water of hydration. (Dana)

Kal (Eng.). A coarse kind of iron. (Anderson)

Kalamein. 1. An anticorrosive alloy of lead, tin, antimony, bismuth, and nickel for coating iron. 2. To coat in a manner similar to galvanizing, but using kalamein. (Webster)

Kaliborite. *See* Heintzite.

Kalinite; Potash alum. Hydrous aluminum-potassium sulphate, $K_2SO_4.Al_2(SO_4)_3+24H_2O$. (U. S. Geol. Surv.)

Kalium. Potassium: the Latin form of the word *kali*, signifying *potash* (Standard). Chemical symbol, K.

Kallait. Turquoise.

Kallen. *See* Callen.

Kamarezite. A grass-green, hydrated, basic copper sulphate, $Cu_3(OH)_6SO_4.6H_4O$. (Standard)

Kame. 1. (Scot.). A rounded hill or oblong ridge terminating abruptly in a high mound. Composed of gravel and sand, and having its major axis transverse to the drift movement. (Thompson)

2. One of the hills or ridges formed of detritus by glaciers in the line of their track, or even any small conical hill: loosely used interchangeably with *esker* and *eskar*. (Standard)

Kame plain. A broad, low, massive kame, composed only of coarse sediment. (Standard)

Kämmerling furnace. A modification of the Belgian zinc smelting furnace wherein there are two combustion chambers separated by a central longitudinal wall. In principle the furnace is similar to the Hauzeur a compound. (Standard)

Kampong (Malay). An inclosed space; furnace. (Ingalls, p. 444)

Kanchana (Malay). Gold. (C. G. W. Lock).

Kand; Cand (Corn). Fluorspar. (Power)

Kank (Mid.). A twist in a rope (Gresley). A variation of kink.

Kankar (Hind.) A concretionary limestone found in India and used for making roads. It yields an excellent lime for mortar. (Standard)

Kann. *See* Cand.

Kaolin; China clay; Porcelain clay. A clay, mainly hydrous aluminum silicate, from which porcelain may be made (U. S. Geol. Surv.). *See also* Kaolinite.

Kaolinic. Pertaining to, allied to, or resembling kaolin. (Webster)

Kaolinite. A white soft earthy mineral consisting of a hydrous silicate of aluminum and one of the chief constituents of clay. A common product of rock decay and of oxidation in veins (Ransome).

Kaolinization. The decomposition of certain rock-forming minerals to kaolin or clay. (Farrell)

Kaple. *See* Capel.

Karang (Malay). A layer of tin-bearing gravel. Also spelled Karong.

Karat. *See* Carat.

Karn; Cairn (Corn.). A pile or heap of rocks, as for a monument; sometimes the solid rock.

Karstenite. Anhydrite.

Kast furnace. A small circular shaft furnace with three or four tuyères, for lead smelting. (Raymond)

Katabothron (Mod. Greek). An underground passage cut by water. (Standard)

Katalysis; Katalytic. *See* Catalysis.

Katamorphic zone. The zone of katamorphism corresponds to the zone of rock fracture and is a zone of breaking down. It is especially characterized by solution, decrease of volume and softening of the materials; the processes are destructive, resulting in degeneration. The zone is divided into the belt of weathering and the belt of cementation. *See also* Anamorphic zone. (Watson)

Katamorphism. *See* Metamorphism. Any change in the texture of rocks produced by fracturing and granulation, with recrystallization, whereby rocks become finer-grained and foliated, as the production of gneisses and schists from granite. (Century)

Kati. A Chinese weight equal to 1⅓ pounds. (Skinner)

Kation; Kathion. *See* Cathion.

Katouti. A gold-washing trough of the northwest provinces, India. (Lock)

Kauri resin, or Gum; Copal. A resinous product of the Kauri, found in yellow or brown lumps in the ground where the trees have grown. It is used for making varnish and as a substitute for amber (Webster). Found in New Zealand.

Kavels (Eng.). Lots cast by miners for the working places. (Bainbridge)

Kawishiwin (Lake Superior region). The iron-bearing belt of the Keewatin. The greenstone, or dioritic, (upper) part of the Keewatin. (Winchell)

Kawk (Corn.). Fluorspar. (Power)

Kayak; Kayack; Kiak (Alaska). An Eskimo canoe, usually of skin and completely decked, the covering being laced about the person who sits in an opening near the center; it is about 16 feet long and seldom carries more than one person.

Kazen (Corn.). A sieve. (Davies)

Kazer. *See* Kazen.

Kebble (Eng.). An opaque calcareous spar. (Bainbridge)

Keckle-meckle (Eng.). Lead minerals of the poorest quality. *See* Kackle-meckle.

Kedabekite. A name given by E. von Federow to a dike rock from the Kedabek mines, province of Elizabethpol, Transcaucasia. The rock is finely granular, dark gray in color and consists of basic, plagioclase, lime-iron garnet and a pleochroic pyroxene called violaite. (Kemp)

Keeker (No. of Eng.). An inspector of underground mining. (Century)

Keel (Eng.). 1. A flat-bottomed ship or barge used on the Tyne to carry coal from Newcastle. 2. A barge load of coal containing 8 Newcastle chaldrons or 21⅓ tons avoirdupois. 3. A red iron ocher used for marking lumber (Webster). (Eng.) The same as reddle or red clay. *Also* Keil.

Keel wedge. A long iron wedge for driving over the top of a pick hilt. (C. and M. M. P.)

Keeper. 1. One in charge of opening and closing the tap hole of a blast furnace, and who runs iron at cast. (Wilcox) 2. (Eng.). An engine keeper; a horse keeper, etc. Also a brakeman. (Gresley)

Keeps; Keps. Wings, catches, or rests, to hold the cage when it is brought to rest at the top, bottom or at an intermediate landing (Chance). Also called Shuts, Fans, Chairs, Dogs. *See also* Cage shuts.

Keeve. 1. *See* Cauf. 2. A tub used in collecting grains of heavy ore or metal; a dolly tub (Raymond). A keeve of rich slime is stirred with water, and then struck on the side, which causes the heavy mineral to settle on the bottom (Standard). Also spelled Kieve.

Keeving. The preparation of fine ore, or slime in a keeve. (Standard)

Keewatin. According to the U. S. Geological Survey, the overlying but older of the two series of rocks comprised in the Archean system. Also the corresponding geologic epoch. (La Forge)

Keg. A cylindrical container made of steel or some other substance, which contains 25 pounds of blasting powder or gunpowder (Du Pont). Any small cask or barrel having a capacity of 5 to 10 gallons.

Keil furnace. A gas-fired furnace containing one or more vertical retorts for the distillation of zinc. (Ingalls, p. 395)

Keilhauite. A titano-silicate of calcium, aluminum, ferric iron, and the yttrium metals. (Dana)

Keith process. An electrolytic process for refining lead. The electrolyte is composed of a solution of lead acetate or of lead chloride. Impure lead forms the anode plates, which are inclosed in bags of coarse muslin. The cathodes are made of thin metal plates. The deposit obtained is in crystalline form and falls to the bottom of the vessel, which may be made of plate iron or of wood. (Goesel)

Kelf (Derb., Leic.). The vertical height of the face of the undercut at any time during the operation of undercutting. (Gresley)

Kell (Eng.). A variation of Kiln.

Keller automatic roaster. A six-deck horizontal furnace for calcining sulphide ores. (Hofman, p. 191)

Keller furnace. A multiple-deck roasting furnace for sulphide ore. It is a modification of the Spence furnace. (Ingalls, p. 98)

Kelly. 1. In brickmaking, to cover with mold or soil. 2. Mold overlying clay; surface earth. (Standard)

Kelly filter. An intermittent, movable pressure filter. The leaves are vertical and are set parallel with the axis of the tank. Pulp is introduced into the tank (a boiler-like affair) under pressure and the cake formed. The head then is unlocked and the leaves run out of the tank chamber, by means of a small track, and the cake is dropped. The carriage and leaves are then run back into the tank and the cycle begun again. (Liddell)

Kelp. 1. Large seaweeds such as are used in producing the manufactured kelp. (Century)
2. The ashes of seaweeds, formerly the source of soda as used in glass and soap making, now a source chiefly of iodine. (Standard)

Kelve (Corn.). Fluorspar. (Power)

Kelyphite rim. A name applied by Schrauf to rims of pyroxene, hornblende and spinel that sometimes surround the garnets of peridotites. It is of microscopic application. (Kemp)

Kennel. 1. (Mid.) A collier's term for cannel coal. (Gresley)
2. Also a channel; little canal; gutter.

Kenner (No. of Eng.). An expression meaning time to leave off work. (Gresley)

Kentallenite. A granular plutonic igneous rock, between augite syenite and olivine gabbro, composed essentially of augite, olivine, biotite, andesine, and orthoclase. (La Forge)

Kentish rag (Eng.). A provincial term for the hard, gray, arenaceous limestone of the green-sand formation, much used for building in Kent and Sussex. (Roberts)

Kentledge. 1. A nautical term for pig iron used as ballast. 2. In British military usage, unserviceable, cast-iron articles such as condemned shot, and shell, etc. (Webster)

Kent roller mill. A revolving steel ring with three rolls pressing against its inner face. The rolls are supported on springs, and the rings support the roll, so that there is some freedom of motion. The material to be crushed is held against the ring by centrifugal force. (Liddell)

Kenyte. A vitrophyric variety of phonolite containing phenocrysts of anorthoclase. (La Forge)

Keps (Scot.). Movable support for the cage at a landing; shuts (Barrowman). *See* Keeps.

Keramics. Same as Ceramics.

Kerargyrite. Same as Cerargyrite.

Keratophyre. A rock intermediate between porphyries and porphyrites, and differing from each in having as the principal feldspar, anorthoclase instead of either orthoclase or the soda-lime feldspar. Keratophyre applies to pre-Teriary rocks, whereas pantellerite is used for the same aggregate of more recent geological date. The name was given in 1874 by Gümbel to certain Bavarian felsitic and porphyritic rocks, that resembled hornfels, hence the name from the Greek for horn (Kemp). Its significance has since beeen restricted to any variety of syenite porphyry, trachyte, or felsite containing phenocrysts of anorthoclase.

Kerf (Eng.). The undercut made to assist the breaking or mining of the coal (Steel). *See also* Kerve.

Kermesite. A monoclinic, cherry-red mineral, Sb_2S_2O, resulting from the alteration of stibnite (Dana). Also called Kermes mineral.

Kermes mineral. A soft, reddish-brown artificial powder consisting of Sb_2S_3, but usually containing also an oxide and alkali. Kermesite is a native form. (Webster)

Kerned (Corn.). Said of certain ore hardened by exopsure to the sun. (Davies)

Kernel roasting. *See* Roasting.

Kern stone (Local, Eng:). A sandstone of a coarse granular composition. (Standard)

Kernon. An old name for Cornwall. (Pryce)

Kerogen. A term applied to the bituminous material in Scottish oil-shale. (Bacon)

Kerosene. A mixture of hydrocarbons whose average boiling point is about 450° F., freed on the one hand from gasoline or naphtha and on the other hand from the heavy hydrocarbons that belong to gas oil and lubricating oil. (Bacon)

Kerosene shale. Speaking broadly, any bituminous shale from which illuminating oil has been or may be obtained. (Bacon)

Kerrite. A pearly, yellowish-green variety of mica that is closely related to jefferisite. It occurs as fine scales. (Standard)

Kersantite. 1. A very old name of somewhat varying application, but formerly used for rocks that are intermediate between diorites or their corresponding porphyrites and gabbros or diabases. Mica-diabase was used as a synonym (Kemp).
2. A finely granophyric or aphanophyric igneous rock composed of plagioclase and biotite, with or without augite, hornblende, and olivine; a porphyritic diabase or augite diorite with phenocrysts of biotite (La Forge). Kersanton is practically a synonym. Both names are derived from a town in Britany.

Kerve; Kirve (No. of Eng.). To undercut, as in coal mining. (C. and M. M. P.)

Ketches (So. Wales). Same as Backstay.

Kettle. 1. (Scot.) A cylindrical or barrel-shaped iron or wooden vessel used to raise men or materials in shaft sinking. (Barrowman)
2. *See* Kettle hole.

Kettleback. The same as Horseback. (Davis *v.* Nuttallsburg Coal & Coke Co., 34 West Virginia, p. 502)

Kettle bottom. A piece of slate that drops out of a smooth cavity in the roof of a mine. It loosens and falls without giving any warning (Harr). Same as Horseback.

Kettled. In geology, hollowed out like a kettle, as surface bowls by action of a glacier. (Standard)

Kettle dross. Skimmings resulting from the desilveration of lead bullion. It consists principally of lead oxides mixed with metallic lead. (Hofman, pp. 445 and 498, 6th ed.)

Kettle hole. A steep-sided hollow, without surface drainage, especially in a deposit of glacial drift. (Webster)

Kettle moraine. A terminal moraine the surface of which is marked by many kettle holes. (Webster)

Ketton stone. A reddish-brown oölitic limestone from Ketton, England. (Webster)

Keuper. The upper division of the European Triassic formation. (Standard).

Kevel (Derb.). A variation of Kevil.

Kevil. 1. (Derb.). A veinstone, consisting of a mixture of calcium carbonate and other minerals. (Raymond)
2. (No. of Eng.) The amount of coal sent out by the various miners during a certain period. (Gresley)

Keweenawan. According to the U. S. Geological Survey, the uppermost or youngest of the series of rocks comprised in the Algonkian system; it is regarded by some geologists as Lower Cambrian. Also the corresponding geologic epoch. (La Forge) The system includes a body of igneous rocks of prodigious thickness, conglomerates, and sandstones. The copper-bearing rocks of the Lake Superior region are part of the system.

Key. 1. (Eng.) A kind of wrench used for screwing and unscrewing drill rods. Also used to support the rods by resting on top of the casing and allowing the rods to hang by

the enlarged joint coming in contact with the key. (Gresley)
2. A wedge driven between two feathers to break a stone. (Webster)
3. An iron bar of suitable size and taper for filling the keyways of shaft and pulleys so as to keep both together. (Steel)
4. A rectangular depression, in one or both flat sides of a brick, sometimes called Frog or Panel. (Ries)
5. A keystone.

Key blocks. The first blocks which are removed in opening up a new quarry floor. (Bowles)

Key seat. *See* Keyway.

Keystone. **1.** The voussoir at the center of the crown of an arch, which, being the last set in place, is regarded as binding the whole together. A bond stone. **2.** A filling-in block of cast iron used in some lead smelting furnaces. (Webster)

Keyway; Key seat. A groove or channel in a shaft or pulley for receiving a key. (Webster)

Kibble; Kibbal (Corn. and Wales). An iron bucket for raising ore. (Raymond)

Kibble filler (Eng.). The man fills the kibble with ore, coal, or waste rock. (Bainbridge)

Kibble rope; Kibble chain (Eng.). A rope or chain for hoisting a kibble or bucket. (Standard)

Kick. **1.** In brickmaking, a wooden block on the upper face of a stock board to make a key or depression in the bottom of a slop-molded brick. **2.** A die for molding brick. (Standard)

Kick back. **1.** (Arkansas) To break the coal on both sides of the auger hole which contains the powder, usually along a joint in the coal. (Steel)
2. A track arrangement for reversing the direction of travel of cars moving by gravity. (C. and M. M. P.)

Kicker. **1.** Ground left in first cutting a vein, for support of its sides. (Raymond)
2. (Scot.). The reversing gear of some direct-acting steam and hydraulic pumps. (Barrowman)
3. (Eng.). A liberating catch made in the form of a bell-crank lever rocking on a horizontal axis. (Gresley)

Kick-up. **1.** (Aust.). An end tippler. (Power)
2. (No. of Eng.). *See* Tipper, 1 and 2.

Kidney ore. A variety of hematite, occurring in compact kidney-shaped masses. (Webster)

Kidneys. **1.** (Tenn.). Bowlders of phosphate rock. (Power)
2. A term applied by miners to a mineral zone which narrows down until very thin and then suddenly expands and again suddenly contracts. (Meydenbauer *v.* Stevens, 78 Fed. Rept., p. 791; Rough Rider, In re, 41, Land Decisions, p. 255)

Kidney stone. **1.** A nodule of ironstone common in the Oxford clay (Middle Oölite) of England. **2.** A tough, compact, fine grained greenish or bluish amphibole; nephrite. (Standard)
3. A pebble or nodule roughly resembling a kidney. (Webster)

Kiefekil; Kefferkil (Persian). **1.** A kind of clay. **2.** A meerschaum. (Century)

Kies. A general term for the sulphide ores, now adopted into English from the original German. (Kemp)

Kieselguhr. German name for diatomaceous earth, and more or less current in English (Kemp). Used as an absorbent for nitroglycerin in dynamite. It is an inert substance or passive base, whose only value lies in its capacity to absorb about three times its weight in nitroglycerin (Du Pont). *See also* Infusorial earth.

Kieserite. A hydrous magnesium sulphate, $MgSO_4+H_2O$. Usually massive, granular to compact. Color white, grayish, yellowish. (Dana)

Kieve (Corn.). A variation of Keeve, 2.

Kiles (Eng.). Leather strings. (Bainbridge)

Kilkenny coal. Anthracite. (Gresley)

Kill. To mix atmospheric air with fire-damp or other gases so as to make them harmless. (Gresley)

Killas. Cornish miners' term for the slates or schists that form the country rock of the Cornish tin veins. (Kemp)

Killman (Scot.). A kilnman. (Standard)

Killogie (Scot.). The space before the fire in a kiln. (Standard)

Killow (Eng.). A deep blue or blackish earth. (Standard)

Kiln. 1. A furnace for the calcination of coarsely broken ore or stone; also, an oven for drying, charring, etc. (Raymond)
2. A potter's oven for baking biscuit or fictile ware. 3. A furnace for vitrifying, as bricks or porcelain. (Standard)

Kiln-dry. To dry in a kiln. (Webster)

Kiln eye (Scot.). The opening at the bottom of a draw kiln. (Barrowman)

Kilnhole. The mouth or opening of an oven or kiln. (Webster)

Kilnman. A man who tends a kiln. (Standard)

Kiln-run brick. *See* Stock brick.

Kiln white. A scum which originates in the burning of brick. (Ries)

Kilo. A short form of kilogram. (Webster)

Kilocalorie. A great calorie. (Webster)

Kilogram. A unit of weight in the metric system and equal to one thousand grams, or 2.2046 pounds avoirdupois.

Kilometer. A length of one thousand meters, equal to 3,280.8 feet, or 0.621 of a mile: the chief unit for long distances in the metric system. (Standard)

Kilowatt. A unit of power equal to one thousand watts. (Webster)

Kilowatt hour. A unit of work or energy equal to that done by one kilowatt acting for one hour; approximately 1.34 horse-power hour. (Webster)

Kimberley joint. Originally a pipe joint of English manufacture for use in South Africa. It consists of an outer wrought sleeve or ring belled out on the ends to form a suitable lead recess for calking, the pipes butting in the center of the sleeve. (Nat. Tube Co.)

Kimberlite. A name given by H. Carville Lewis to the peridotite that forms the diamantiferous dike at the Kimberley mines, of South Africa. The rock is more porphyritic than typical peridotite (Kemp). Also called Blue earth or Blue ground by miners.

Kimberly method. *See* Combined top-slicing and shrinkage stoping.

Kim-coal. *See* Kimmeridge shale.

Kimmeridge clay. A thick bed of clay, constituting a member of the Oölite (Jurassic) group. So-called, because it is found well developed at Kimmeridge, in the isle of Purbeck, Dorsetshire. (Comstock)

Kimmeridge coal. A bituminous shale or impure coal which occurs in the Kimmeridge clays. (Power)

Kimmeridge shale. Extensive deposits of bluish-gray slaty clay, containing more or less volatile matter, and interstratified with thin beds of highly bituminous shale, occurring in Dorsetshire. This clay, which is a member of the Upper Oölite, attains in places a thickness of as much as 600 feet. Locally, called Kim-coal. (Bacon)

Kimmeridgian. In geology, one of the stages of the Upper Oölite series of the Jurassic system of strata in Great Britain. (La Forge)

Kin. A Japanese weight of 1.31 pounds avoirdupois. (Weed)

Kind (Eng.). Generally signifies tender, soft, or easy to work. Said of certain ores. (Gresley)

Kind-Chaudron process. A process for sinking shafts in which a small pit is sunk in advance and subsequently enlarged to the full size of the shaft, when the tubbing or water-tight lining with its moss box at the bottom is lowered or pressed down into position, and the tubbing backed up with an outside lining of concrete. (Webster)

Kindly. A miner's term for a rock which is considered congenial or likely for carrying ore. (Roy. Com.)

Kindly ground (Eng.). Those rocks in which lodes become productive of mineral of value. (Cox)

Kind's plug. A wooden plug attached to an iron rod, used in connection with sand for recovering tubing from bore holes. (Raymond)

Kingbolt. A bolt supporting a cage in a shaft. (Webster)

Kingle. Barren blaes, or ribs of hard calcareous or quartzose material, destitute of bituminous matter, occurring in the Scottish oil shales. (Bacon)

King-post (Eng.). An apparatus for strengthening a beam. (Bainbridge)

King-pot. The large central pot or crucible in a brass-melting furnace. (Raymond)

King screen. A drum-type screen in which the pulp to be screened is delivered on the outside, the undersize passing through the screen and discharging through the open end. (Liddell)

King's silver. A very pure but soft silver used for plate in the beginning of the 18th century. (Standard)

King's yellow. A bright yellow pigment, As_2S_3. Occurs native as orpiment, and is also made artificially. (Webster)

Kink. 1. (Scot.) A twist in a rope; a doubling and interlocking of several links in a chain. (Barrowman)
2. A deflection in a vein or lode which does not interrupt the continuity thereof. (Voght)

Kinkead mill. A pan mill with a convex conical bottom on which a muller, having two surfaces of different inclinations, grind. The machine acts on the gyratory principle as regards crushing between the surfaces. (Liddell)

Kinoully (Corn.). *See* Kivully.

Kinzigite. A metamorphic rock consisting of biotite, garnet, and oligoclase. It was named, in 1860, by Fischer, from the Kinzig Valley, in the Black Forest. (Kemp)

Kip (No. of Eng.). A level or gently sloping roadway, at the extremity of an engine plane, upon which the full cars stand ready to be sent up the shaft (Century). The tubs, or cars, usually go to the shaft by gravity.

Kir. A Russian name given to petroleum solidified on exposure, and having the appearance of asphalt. (Mitzakis)

Kirchhoff's law. The law that in any branching network of electric wires the algebraic sum of the currents in all of the wires that meet in any point is zero. (Webster)

Kirn (Scot.). To bore with a hand jumper or kirner. (Barrowman)

Kirner (Scot.). A hand jumper (drill). (Barrowman)

Kirve (No. of Eng.). To undercut (Gresley). *See* Kerve.

Kirving (Newc.). The cutting made at the bottom of the coal by the miner (Raymond). *See* Holing.

Kish. 1. The blast-furnacemen's name for the graphite segregations seen in pig iron and in the cinder of a furnace making a very gray iron. (Raymond)
2. The dross on the surface of molten lead. (Standard)

Kiss process. About the same as the Patera process (*which see*) except that calcium hyposulphite is used for leaching the ore, and calcium polysulphide for precipitating the silver. (Liddell)

Kist. The wooden box or chest in which the timberman keeps his tools. The chest is always placed at the flat or lamp station. This spot is often referred to by the expression "at the kist." (C. and M. M. P.)

Kisye (Malay). Rattan sieves used in gold washing. (Lock)

Kit. A wooden vessel. (Raymond)

Kitchen. *See* Laboratory, 2.

Kitchens (Eng.). Coal prepared and sold expressly for use in ranges, stoves, etc. (Gresley)

Kitting (Eng.). Thieving in combination. There are different modes of cheating the adventurers (owners) by miners mixing their ores, and sometimes by stealing from heaps not their own and carrying to their own heap. All these thefts are called "kitting." (Hunt)

Kittle (Scot.). Dangerous; risky. (Barrowman)

Kitty (No. of Eng.). A length of about four inches of straw filled with gunpowder by which flame is communicated to the blasting charge. (Gresley)

Kive (Prov. Eng. and Scot.). Same as Keeve. (Standard)

Kiver (Local Eng.). A shallow keeve, *which see.* (Standard)

Kivully (Corn.). Loose ground. (Pryce) Also spelled Kinoully.

Kleeman condenser. A rectangular clay pipe in which distilled zinc is condensed. (Ingalls, p. 550)

Kleinite. A mineral consisting of mercury-ammonium chloride. Formula uncertain. (U. S. Geol. Surv.)

Klinkstone. *See* Phonolite.

Klip (So. Afr.). A rock or stone; cliff, mountain. (Standard)

Kloof (So. Afr.). A mountain pass or cleft; a gorge or narrow valley. (Standard)

Kluft. A fault. (Ure)

Knacker (Prov. Eng.). A collier's horse. (Standard)

Knapper. A stone breaker; specifically one who breaks up flint flakes into sizes used for gun flints. (Century)

Knapping (Scot.). The act of breaking stone. (Standard)

Knapping hammer. A long-handled steel hammer for breaking stones, such as is used for breaking flint flakes. (Standard)

Knapping machine. A stone breaker. (Standard)

Knee joint. A toggle joint. (Standard)

Kneeler (Eng.). A quadrant or triangular lever which converts the horizontal movement of a piston rod into the up and down movement of pump rods. (Webster)

Knee movement. The mechanism that operates a toggle-joint. (Standard)

Knee piece. 1. A bent piece of piping. (C. and M. M. P.)
2. An angular piece of timber used in a roof (mine) to strengthen a joint where two timbers meet.

Knee timber. Timber with natural knees or angles in it. A piece of timber with an angle or knee in it. (Webster)

Knits; Knots. Small particles of ore. (Raymond)

Knob. 1. A round hill or mountain; especially an isolated one (Webster). *See also* Boss, 4.
2. To remove knobs from, as in rough-dressing stone in the quarry. (Standard)
3. A small support for the roof. (Min. Jour.)

Knobbing. The act of rough-dressing stone in the quarry by knocking off the projections and points. (Century)

Knobbing fire. A bloomery for refining cast-iron. (Raymond)

Knock. 1. To examine a mine roof for safety. *See also* Chap. (Gresley)
2. (Local, Eng.). A sand-bank; so-called along the Lincolnshire coast. (Standard)

Knock-back ore (Eng.). Ore mixed with barite or kevil. (Bainbridge)

Knocker. A lever that strikes on a plate of iron at the mouth of the shaft, by means of which miners below can signal to those on the top. (C. and M. M. P.)

Knocker line. The signal line extending down the shaft from the knocker. (C. and M. M. P.)

Knocking. 1. (So. Wales) Signals made underground by knocking on the coal. (Gresley)
2. (Eng.) Ore broken with a hammer, especially the large lumps which are picked out. (Webster)

Knocking-bucker (Eng.). A tool cut out of a strong flat bar of iron, used for breaking or bucking ore. (Duryee)

Knockings. Pieces of stone cut or taken off in blasting or in rough-dressing. (Standard)

Knocking-up (Eng.). The calling up of miners by beating the landing wagon. (Bainbridge)

Knock-off. 1. The point upon an engine plane at which the trip is disconnected from the rope. 2. A joint for disconnecting the bucket from the pump rods. 3. To do away with. (Gresley)
4. To stop (work) for the day or part of a day. *See* Kenner.

Knock-off hook. 1. (Eng.) A hook by which cars may be detached from a rope by the withdrawal of a pin or knocking off a catch. 2. Also a hook by means of which the rope is detached from the cage when it is drawn too high by the winding engine. (G. C. Greenwell)

Knock-off joint. In well drilling, a joint used in the rods of deep-well pumps. The jointed ends of the rods are enlarged to a square section and notched to fit against one another, and are confined by a clasp or bridle embracing them. The joint is tapered lengthwise and the hole in the clasp is tapered to correspond, so that the tendency is always for the clasp to tighten around the joint. (Nat. Tube Co.)

Knockstone (Eng.). A stone or piece of iron on which to break lead-ore. (Bainbridge)

Knoll. A hillock of rounded form; a mound; the top of a hill or mountain. (Webster)

Knots. A term applied by quarrymen to dark gray or black masses, more or less oval or circular in cross section, which are segregations of black mica or hornblende formed in the granite while in a molten state. English quarrymen call them 'heathen.' (Dale)

Knotty. So altered by contact metamorphism as to have new minerals developed, giving a spotted or knotty appearance (Kemp). Sometimes applied to concretions found in sedimentary rock. (Ries)

Known mine. Lands can not be held to be "known mines" unless at the time the rights of the purchaser accrued there was upon the ground an actual and open mine which either had been worked or was capable of being worked. (Colorado Coal, etc., Co. *v.* United States, 123, p. 327; U. S. Min. Stat., p. 746)

Known to exist. A vein or lode is known to exist when it could be discovered by anyone making a reasonable and fair inspection of the premises for the purpose of a location. (Iron Silver Mining Co. *v.* Mike & Starr, etc., Co., 143 United States, p. 403; Min. Stat., pp. 558–562)

Knox and Osborne furnace. A continuously working shaft furnace for roasting quicksilver ores, having the fireplace built in the masonry at one side. The fuel is wood. (Raymond)

Knox hole. A circular drill hole with two opposite vertical grooves which direct the explosive power of the blast. (Perkins)

Knox system. A system of separating masses of rock by blasting with black blasting powder in reamed drill holes, a considerable air space being left between the charge and the stemming. (Bowles)

Knuckle. The place on an incline where there is a sudden change in grade. (Harr) The top of a grade or hill on a track over which mine cars are hauled (Richards *v.* Sloss-Sheffield Steel & Iron Co., 146 Alabama, p. 256; 41 Southern, p. 288.

Koehler furnace. A revolving, cylindrical, muffle furnace used in Upper Silesia. (Ingalls, p. 161)

Koehler lamp. A naphtha-burning flame safety lamp for use in gaseous mines.

Koepe system. A system of hoisting without using drums, the rope being endless and passing over pulleys instead of around a drum. (C. and M. M. P.)

Kokowai (New Zealand). Red ocher; a common native pigment, mixed for use with fish oil or vegetal oil. (Standard)

Komspelter. A proposed trade name for spelter from the Kansas, Oklahoma, and Missouri fields, *Kom* being the initial letters of the three states named. (Min. and Sci. Press, vol. 115, p. 672)

Konite. A magnesian dolomite. (Standard)

Könlite. A reddish brown to yellow, soft, amorphous hydrocarbon mineral that has a specific gravity of 0.88, a melting point of 114° C., and distils at 200° C. (Bacon). Also called Könleinite.

Kopje (So. Afr.). A hillock; knob. (Standard)

Korb (Ger.). *See* Corf, 1.

Koreg (Malay). A stratum of compact yellow clay underlying tin-bearing gravel.

Koswite. A name derived from Mt. Koswimsky, in the Urals, and given by Duparc and Pearce to a melanocratic, granular rock composed of varieties of pyroxene, olivine, hornblende, chromiferous spinels, and magnetite; the last named constituting a matrix or cement for the others. (Kemp)

Koth. A name given by the Spaniards to an earthy, slimy substance ejected from volcanoes in South America. The natives call it Moya. (Humble)

Kraal (So. Afr.). An enclosure or stockade or pen for cattle or sheep. A hut or group of huts for native miners.

Krablite. Ejected blocks from the volcano of Krafla, in Iceland, which were regarded many years ago by Forchhammer, under the name baulite, as a feldspar, of percentage in silica far beyond that of albite. It was soon shown by the microscope to be an aggregate. (Kemp)

Krassyk. A local name for a decomposed ferruginous schist; in the Berseov gold-mining district of the Urals. (Kemp)

Kremnitz white. A pure white lead made by treating litharge and lead acetate with carbon dioxide, and formed into tablets. It is used in fine painting. (Webster)

Krems. Same as Kremnitz white, *which see.*

Krennerite. Orthorhombic telluride of gold and silver. Composition variable, $(Au, Ag)Te_2$. At Cripple Creek analysis gives gold 43.86 per cent, silver 0.46 per cent, tellurium 55.68 per cent. (U. S. Geol. Surv.)

Krohnke process. The treatment of silver ores preparatory to amalgamation, by humid chloridization with copper dichloride. (Raymond)

Krupp ball mill. An ore pulverizer in which the grinding is done by chilled-iron or steel balls of various sizes moving against each other and the die ring, composed of five perforated spiral plates, each of which overlaps the next. The plates form steps which give the balls a drop from one plate to the next, and in addition, give space through which oversize is returned. Outside the die plate is a coarse perforated screen to take the chief wear, while outside that is fine gauze screens. The fines discharge through these into the housing inside which the screens revolve and which has a hopper bottom. (Liddell)

Kruppize. To apply the Krupp hardening process to, as armor plate. (Standard)

Krupp process. 1. *See* Krupp washing process. Called also Bell-Krupp process. (Webster)

2. A cementation-process designed for the hardening of surface steel, as for armor plates, where the object is to strengthen the outer portion of the mass from the surface toward the interior. (Standard)

Krupp washing process. The removal of silicon and phosphorus from molten pig iron by running it into a Pernot furnace, lined with iron oxides. Iron ore may also be added, and the bath is agitated by rotation for five to eight minutes only. *See* Bell's dephosphorizing process. (Raymond)

Kryokonite. Dust of volcanic or cosmic origin found on the ice and snow of the polar regions. (Webster)

Krypton. An inert gaseous element of the argon group, occurring in the air to the extent of about one volume in one million. Symbol, Kr; atomic weight, 82.92. (Webster)

Krystic. In geology, pertaining to or treating of the subject of ice as a surface feature of the earth, in any and all of its forms, including glacier ice; as, *krystic* geology. (Standard)

Kua. Specially shaped hoes used for working gravel in the sluice in Japan. (Lock)

Kugel. The German word for ball or sphere, often prefixed to those igneous rocks that show a spheroidal development, such as corsite, orbicular granite, etc. (Kemp)

Kulaite. A name derived from the Kula basin in Lydia, Asia Minor, proposed by H. S. Washington, for those rare basalts (there abundant) in which hornblende surpasses augite in amount. (Kemp)

Kuli (India). Wages; hire. Also spelled Culy. (Century)

Kullaite. A name derived from the Swedish locality Kullen, and applied by A. Hennig to a dike-rock which is regarded as an intermediate type between the diabases and the granites. In a feldspathic groundmass of ophitic (diabasic?) texture, are red phenocrysts of plagioclase and microcline. The groundmass has rods of oligoclase-andesine with augite, orthoclase and titaniferous magnetite. (Kemp)

Kunkur (Hind.). A nodular or tufaceous concretionary limestone, generally of an ash-gray or dove-gray color; occurs both in layers or beds, often of considerable thickness and extent, and in detached nodular concretions of various size, imbedded in stiff clay. (Oldham)

Kunzite. A lilac-colored or pink spodumene. Used as a gem. (U. S. Geol. Surv.)

Kupfernickle (Ger.). Niccolite. (Standard)

Kupferschiefer (Ger.). A dark-colored shale of the Permian, worked for copper, in Germany. (Standard)

Kuskite. A name derived from the Kuskokwin river, Alaska, and applied by J. E. Spurr to certain porphyritic dikes, which cut Cretaceous shales, and which have phenocrysts of quartz, scapolite, and probably basic plagioclase (the last now represented by alteration products), in a groundmass of quartz, orthoclase, and muscovite. *Compare* Yentnite. (Kemp)

Kutch. In gold beating, a package of vellum leaves between which sheets of gold are placed for the first beating. (Standard)

Kutter's formula. A formula for estimating the flow of water in rivers and canals, and sometimes modified for estimating the flow through long pipes with low velocity and entrance head. (Webster)

Kyack. 1. (West. U. S.) A pack sack to be swung on either side of a pack saddle. (Webster)
2. (Alaska) *See* Kayak.

Kyanite. The same as Cyanite. (A. F. Rogers)

Kyanize. To treat wood by the process of kyanizing. (Century)

Kyanizing. A process for preventing the decay of wood, by filling the pores with a solution of corrosive sublimate. (Century)

Kyschtymite. A name derived from the Kyschtym mining district of the Urals, and given by J. Morozewicz to a rock consisting chiefly of anorthosite and corundum, with which are associated biotite, spinel, zircon, apatite, and, as secondary minerals, muscovite, chlorite, kaolin, and chromite. (Kemp)

L.

Laberinto (Sp. Am.). 1. Series of sand receptacles. (Lucas)
2. Confused, irregular workings. (Halse)

Labor. 1. (Sp.). Labor; work; a working. This term is applied in mining to the work which is actually going on, and to the spaces which have been dug out. It includes galleries, cavities, and shafts. (Raymond)
2. A Mexican land measure. (Standard)

Labor and improvements. Labor performed or improvements made for development in such manner as to facilitate the extraction of the metals, though such labor and improvements may not be on the particular location itself. (Smelting Co. *v.* Kemp, 104 United States, p. 651; Jackson *v.* Robey, 109 United States, p. 444; Justice Min. Co. *v.* Barclay, 82 Fed. Rept., p. 560; Anvil Hydraulic & Drainage Co. *v.* Code, 182 Fed. Rept., p. 206)

Laborant. A worker in a laboratory, as a chemist. (Webster)

Laborar (Port.). To work mines. (Halse)

Laboratory. 1. A place fitted up for chemical analysis, etc. 2. The space between the fire and flue bridges of a reverberatory furnace in which the work is performed; also called the kitchen and the hearth. (Raymond)

Laboratory furnace. A small, compact furnace such as the Bunsen burner furnace or the blast gas-furnace. (Century)

Laboreo (Sp.). Mining, or the act of mining. (Halse)

Laborer. 1. A man hired by the contract miner to assist him. 2. Mine laborer; a man working for day wages in or about a mine; a *company man* distinguished from digger or contractor. (Steel)

Labores (Sp.). A working place in a mine; a stall. *L. altas*, high workings, placers above water level; *L. á cielo*, an open-cut mine or quarry; *L. bajas*, low workings; *L. de cantera*, open-cast workings; *L. de crestón*, surface works (Lucas). *L. de hacienda*, all workings in a mine not let to tributers (Min. Jour.). *L. por cuadros*, pannel work; *L. por gradines*, stoping; *L. preparatorios*, dead works; *L. subterraneas*, underground workings. (Lucas)

Labradophyric. Containing distinct crystals of labradorite. Also called Labradoritic. (Standard)

Labrador feldspar-stone. Same as Labradorite. (Standard)

Labrador hornblende. Same as Hypersthene. (Standard)

Labradorite. A lime-soda feldspar. *See* Feldspar and Moonstone. (U. S. Geol. Surv.)

Labrar (Sp.). 1. To work a mine. 2. To work metals. 3. To dress stones. (Halse)

Labyrinth. 1. A series of canals through which a stream of water is directed for sorting crushed ore according to its specific gravity. (Webster)
2. A pipe or chamber of many turnings, for condensing vapors or fumes, as of mercury. (Standard)

Laccolite. A laccolith.

Laccolith; Laccolite. In geology, a mass of intrusive igneous rock, of approximately circular outline and lenticular cross-section with a flat-base, which has been forced between strata so as to raise the overlying beds in the form of a dome. (La Forge)

Laces; Stoops; Nicks (Eng.). Lines cut, with the point of a pick, on slickensides. (Hunt)

Lacing. 1. (No. Staff.) Timbers placed across the tops of bars or caps to secure the roof between the timbers. Also called Lagging. 2. Strips or light bars of wrought iron bent over at the ends and wedged between the bars and the roof. (Gresley)

Lacolita (Sp.). Laccolith. (Dwight)

Lacustrine deposits. Deposits formed in the bottom of lakes. (Roy. Com.)

Ladder. 1. The arm which carries the tumblers and bucket line of a dredge. (Weatherbe)
2. An appliance of wood, metal, or rope, consisting of two long side pieces, usually parallel, with cross pieces on which a person may step on ascending or descending. (Webster)
3. (Som.) A wooden slide with cross bars on which hutches (boxes) run in steep seams. (Gresley)

Ladder dredge. A dredge having buckets carried on a ladder chain. (Century)

Ladder lode. Transverse fractures formed by the cooling of an eruptive dike and which have later become filed with ore. (Vogt, p. 65)

Ladder sollar. A platform at the bottom of each ladder in a series. (Standard)

Ladder vein. Deposits filling short transverse fissures sometimes occurring in dikes of intrusive rocks (Lindgren, p. 146). *See* also Ladder lode.

Ladderway; Ladder road. The particular shaft, or compartment of a shaft, containing ladders.

Lade. 1. (Scot.) A load. 2. A water course, ditch, or drain. 3. The mouth of a river. (Century)

Laded metal. Molten glass dipped from a melting pot to a casting table. Also called Gathered metal. (Standard)

Lade hole (Leic.). A shallow hole cut in the floor to receive the drainage. (Gresley)

Ladera. 1. (Sp.) Declivity. 2. (Mex.) Side track. (Halse)

Lading hole. In glass making, an orifice through which melted glass is ladled or taken out by a cuvette. (Standard)

Ladle. 1. A vessel into which molten metal is conveyed from the furnace or crucible, and from which it is poured into the molds. (Raymond)
2. In glass making, a cuvette. (Standard)

Ladle chaser. A man who distributes hot metal in ladles to different operations, keeps the hot-metal crew busy to prevent skulling of ladles and delay at the mill. (Willcox)

Ladle furnace. A small furnace for calcining or melting substances in a ladle. (Standard)

Ladle-house man. *See* Ladle liner.

Ladle liner. A man who lines, with brick, loam, and clay, ladle thimbles of hot-metal cars. (Willcox)

Ladle skuller. A laborer who removes rim and bottom skulls from hot-metal ladle cars. (Willcox)

Ladrillera (Sp.). An iron or stone mold for melting silver, to form the bar or ingot. (Crofut)

Ladrillo (Sp.). Brick; *L. de arcilla*, clay brick; *L. de fuego*, fire brick. (Halse)

Ladrón (Mex.). A robber. (Dwight)

Lafayette formation. A fluvioglacial deposit of reddish siliceous sand, from 40 to 200 feet thick, made in the Pleistocene during the first glacial retreat, over the Mississippi Valley to the Gulf, and along the Atlantic coast from Maryland to South Carolina. Formerly called Orange sand and Appomattox formation. (Standard)

Lag. 1. To provide or cover with lags; as, to lag a boiler with a nonconductor; to lag timbers in a mine (Standard). *See* Lags; *also* Lagging.
2. The time between a condition and the record of that condition made by any automatic recording device. 3. The amount of retardation of anything, as of a valve in opening or closing, or a metal in recovering its microstructure during a change in temperature.

Laga; Lages (Braz.). Loose masses of thin, flaggy rocks, considered as an indication of manganese ore near the surface. (Halse)

Lag bolt. *See* Lag screw

Lagging. 1. Planks, slabs, or small timbers placed over the caps or behind the posts of the timbering, not to carry the main weight, but to form a ceiling or a wall, preventing fragments of rock from falling through. (Raymond)
2. Heavy planks or timbers used to support the roof of a mine, or for floors of working places, and for the accumulation of rock and earth in

a stope. (Northern *v.* Boston & Montana, etc., Min. Co., 190 Fed. Rept., p. 722)
3. Long pieces of timbers closely fitted together and fastened to the drum rings to form a surface for the rope to wind on. (Steel)
4. The narrow strips supporting an arch of masonry while in construction. (Standard)

Lag machine. A machine for fashioning wooden lags or lagging. (Standard)

Lago (Sp.). A lake; *L. salado*, a salt lake or marsh. (Halse)

Lagoon. 1. A marsh, shallow pond, or lake, especially one into which the sea flows. (Thompson)
2. A depression in the high, grass-covered table-lands of the western Cordilleras of the United States; typically without outlet. but not like 'kettle holes' in glacial deposits.
3. The basin of an Italian hot spring. (Standard)

Lagre (Fr.). In sheet-glass manufacture, a sheet of perfectly smooth glass, interposed between the flattening stone and the cylinder that is to be flattened. (Standard)

Lags (Eng.). Long pieces of timber closely fitted together and fastened to oak curbs or rings forming part of a drum used in sinking through quicksand or soft ground. (Gresley)

Lag screw. 1. A heavy round-shanked wood screw having usually a square head. 2. A flat-headed machine screw by which to fasten wood lagging, as on a curved surface. (Standard)

Laguna (Sp.). A lake or pond. (Halse)

Lagunato; Lagune (Mex.). A small lake. (Halse)

Laid out (Newc.). When a car or tub contains an excess of small coal or stones, it is forfeited, or *laid out* by the miner. (Min. Jour.)

Laigh (Scot.). Low. as laigh doors; laigh lift; laigh side; laigh level. (Barrowman)

Laired (Eng.). Choked with mud. (Bainbridge)

Lake. 1. An inland body of water or natural inclosed basin serving to drain the surrounding country, generally of considerable size and connected with the sea by a stream formed from its overflow. (Standard)
2. A pigment formed by absorbing animal, vegetal, or coal-tar coloring matter, from an aqueous solution by means of metallic bases. (Century)

Lake-bed placers (Alaska). Placers accumulated in the beds of present or ancient lakes; generally formed by landslides or glacial damming. (U. S. Geol. Surv., Bull. 259, p. 33)

Lake ore. *See* Bog iron ore.

Lake pitch. Asphalt from the Pitch Lake, Trinidad. It is richer than the land pitch in bituminous matter; soluble in petroleum spirit. (Bacon)

Lam; Lamb (War.). A kind of fire clay. (Gresley)

Lama (Mex.). 1. Literally, slime. The argentiferous mud which is treated by any amalgamation process; sometimes applied to tailings. Mud in vein. (Dwight)
2. Moist clay used by miners for sticking candles to their hats. 3. (Bol.) Rough pebbles forming a false bedrock to gold-bearing alluvial deposits, and known locally as lama-benches. (Halse)

Lamb. *See* Lam.

Lamb and slack (Canada). Refuse coal. (Morine)

Lambskin (Wales). Anthracite coal of inferior quality; culm. (Century)

Lame. 1. The bar to which the cutting edge of a chisel is attached. (Gresley)
2. Earthenware; a potsherd. Variation of loam. (Standard)

Lamellar. Composed of thin layers, plates, scales, or lamellæ; disposed in layers like the leaves of a book. (Standard)

Lamellar-stellate. In mineralogy, having or consisting of lamellæ arranged in groups resembling stars. (Standard)

Lamero (Mex.). A slime pit. (Halse)

Lame-skirting (Newc.). Widening a passage by cutting coal from the side of it (Raymond). Also called Skipping or Slicing.

Lametta (It.). Foil or wire of gold, silver or brass. (Standard)

Lámina (Sp.). 1. Thin plate or sheet of metal. 2. A screen used in gold milling. 3. A scale of gold. (Halse)

Laminable. Capable of being rolled or hammered into thin sheets; as, gold is the most *laminable* metal. (Standard)

Laminador (Sp.). A rolling mill. (Lucas)

Laminae. The thinnest separable layers or sheets in stratified rocks, whether (1) original planes of deposition, parallel or oblique, to the general stratification, or (2) in rarer usage, planes of cleavage transverse to stratification. (Standard)

Laminate. To beat, roll, or press into thin sheets, as a metal. (Standard)

Laminating machine. A set of rolls or any apparatus for making thin plates of metal, as for rolling gold, preliminary to beating. (Standard)

Laminating roller. The adjustable roller in a rolling mill whereby the thickness of rolled metal sheets are regulated. (Standard)

Lamination. Fine sedimentation planes within strata. (Lowe)

Laming process. A process for removing hydrogen sulphide and carbon dioxide from coal gas by passing it over a mixture of ferric hydroxide, lime, and cinders or sawdust. (Webster)

Lamings (No. of Eng.). A collier's term for accidents of almost every description to men and boys working in and about the mines (Gresley). A variation of Lame, to cripple or disable.

Lammie. A brick swelled out of shape in the kiln. (Standard)

Lamp. Any device employing a flame, incandescent wire, or the like, for furnishing an artificial light, or a similar device for heating, as in laboratory use (Standard). *See also* Safety lamp.

Lampa (Sp.). Shovel. (Lucas)

Lampadite, or cuprous manganese. A variety of wad containing 4 to 18 per cent of oxide of copper, and often oxide of cobalt also. (Dana)

Lampan (Malay). An open-cut hillside mine in which running water is used to remove the ore.

Lámpara (Sp.). A lamp; *L. del minero*, a miner's lamp; *L. de seguridad*, a safety lamp. (Halse)

Lampazo (Mex.). A sort of broom formed of green branches on the end of a long stick, to dampen the flame in a reverberatory furnace. (Dwight)

Lampblack. A product obtained directly from natural gas by burning the latter under plates or rolls. (Bacon)

Lamp cabin (Eng.). A place above ground, or underground near the pit bottom, where the safety lamps are repaired, cleaned, examined, lighted, and locked, before being handed to the workmen in cases where naked lights are not allowed to be taken from the bottom of the shaft. (G. C. Greenwell)

Lamp men. Cleaners, repairers, and those who have charge of the safety lamps at a colliery. (Gresley)

Lamp room. Same as Lamp cabin.

Lamprophyre. A general term, now used in a somewhat wider sense than as originally proposed by Gümbel, who suggested it. Rosenbusch, in the *Massigen Gesteine*, gave it its present significance. Lamprophyres are dike rocks of porphyritic texture, whose predominant phenocrysts are the dark silicates, augite, hornblende, or biotite. They are practically basic dikes. The word means a shining rock, and was first applied in 1874 to small dikes in the Fichtelgebirge that were rich in biotite. In a somewhat modified sense it has recently been employed by L. V. Pirsson, as a single term for the basic 'complementary rocks' (*see* Complementary rocks), and as the antithesis of oxyphyre, which applies to the acidic complementary rocks of an eruptive area. (Kemp)

Lamprophyric. In petrology, of fine-grained granophyric texture and characterized by phenocrysts of a dark silicate, such as biotite, hornblende, or augite. (La Forge)

Lamp stations (Eng.). Certain fixed places in a mine at which safety lamps are allowed to be opened and relighted (Gresley). A lamp room.

Lancashire bord-and-pillar system. *See* Bord-and-pillar method.

Lance. In founding, particularly in casting bomb-shells, an iron rod piercing through the mold and the core, for holding the latter firmly in place during the casting. (Standard)

Lancera (Mex.). An inclined stull. (Dwight)

Lanche (Peru). A kind of timber used in mines. Will last about 15 years. (Halse)

Land. 1. The exposed part of the earth's surface, as distinguished from the submerged part. 2. The rural regions. 3. The plane surface between the furrows of a millstone. (Century)
4. (Forest of Dean) Rising in the direction of the surface or outcropping. Workings to the rise of a drainage level. (Gresley)

Land asphalt. An inferior asphalt containing various impurities and lacking cementing qualities; from places outside of the Trinidad asphalt lake. (Power)

Land chain. A surveyor's chain of 100 links.

Land compass. A surveyor's circumferentor, or compass.

Land district. A division, of a State or Territory, created by law in which is located the land office for the disposition of the public lands therein. (United States *v.* Smith, 11 Fed. Rept., p. 491)

Land drainage. The act or process of freeing land from water. (Century)

Lander (Eng.). The man who receives the loaded bucket or tub at the mouth of the shaft (Gresley). Also called Banksman.

Lander's crook. A hook or tongs for upsetting the bucket of hoisted rock. (C. and M. M. P.)

Land fall. A land slide or land slip. (Century)

Land floe. A field of land ice. (Standard)

Land ice. 1. Ice formed on the land. 2. Ice along the shore or fast between headlands, as distinguished from floe ice. (Standard)

Landing. 1. A level stage for loading or unloading a cage or skip. 2. The top or bottom of a slope, shaft, or inclined plane. (Steel)
3. A platform from which to charge a furnace. (Standard)

Landing box (Scot.). The box into which a pump delivers water. (Barrowman)

Landings (So. Wales). Coal sent to the surface; the output. (Gresley)

Landing shaft (So. Wales). A shaft through which coal is raised. (Gresley)

Land pebbles. A Florida term for certain phosphatic pebbles, as distinguished from river-pebble phosphates. (Power)

Land pitch. Asphalt from the deposit in Trinidad lying between the Pitch Lake and the sea coast. (Bacon)

Land plaster. Any earthy or rock gypsum ground fine and used as a fertilizer. (Standard)

Land rock. *See* Phosphate rock; also called Land pebbles.

Landry box (Newc.). A box at the top of a set of pumps into which the water is delivered (Raymond). *See* Launder.

Land-sale (Eng.). Coal loaded into carts or wagons at the mine for local consumption. Also called Cart trade. (Gresley)

Land-sale colliery (No. of Eng.). A colliery situated in a remote district, being unconnected with rail, canal, or sea, and generally working thin or inferior seams. (Gresley)

Landscape marble. An argillaceous limestone presenting when polished representations of trees, rivers, and fortifications, caused by the infiltrations of oxide of iron. Also known as Forest, River, or Fortification marble, according to its markings. (Power)

Land sculpture. The carving out of the superficial features of the earth's surface by natural causes, as shore-waves, glaciers, and wind, and chiefly by rain and running water. Called also Earth sculpture. (Standard)

Landshut (Prov. Eng.). A landslide, or a landflood. (Standard)

Landslip. A portion of a hillside or sloping mass which becomes loosened or detached, and slips down. (Oldham) A landslide.

Landslip terrace. A short, rough-surfaced terrace resulting from the slip of a segment of a hill. (Standard)

Land surveying. The locating of the boundaries, area, characteristics, etc., of tracts of land (Standard)

Land weight (Lanc.). The pressure exerted by the subsidence of the cover or overburden. (Gresley)

Lane mill. A low-speed edge-roller mill for fine crushing and amalgamating gold ore crushed by rolls and stamps. Similar to the Chilean mill.

Lang lay rope. A rope in which the wires in each strand are twisted in the same direction as the strands in the rope. (C. M. P.)

Langra (Bol.). A bunch or shoot of rich tin ore. (Halse)

Languedoc marble. A brilliant red or scarlet marble blotched with white; from the Montagne Noire, in the French Pyrenees. (Merrill)

Lantern. In founding, a core-barrel, comparatively short for its diameter. (Standard)

Lanthanite. A mineral, $La_2(CO_3)_3 + 9H_2O$, occurring in thin tabular crystals; also granular, earthy. Color grayish white, pink, yellowish. (Dana)

Lanthanum. A rare element allied to aluminum. Lead-gray and easily oxidizable. Symbol, La; atomic weight, 139.0; specific gravity, 6.15. (Webster)

Lanyon shield. An iron curtain, stiffened by ribs of angle iron, suspended from trolley wheels running on a rail parallel with and in front of a zinc furnace. Its main purpose is to protect the worker from the furnace heat. (Ingalls, p. 497)

Lap. One coil of rope upon a drum or pulley. (Gresley)

Lapa (Braz.). Footwall (Halse). Also a cut driven into the footwall.

Lapidarist. A connoisseur of gems and precious stone, and the art of cutting and mounting them. (Webster)

Lapidary. An artificer who cuts, polishes, and engraves precious stones and gems. (Webster)

Lapilli. Volcanic dust and small ejectments, the results of explosive eruptions. (Kemp)

Lapilliform. Having the form of small stones. (Standard)

Lapis-lazuli. A translucent, rich berlin-blue, azure-blue, violet-blue, or greenish-blue stone used for ornament. It is a mixture of lazurite, haüynite, and other blue minerals. (U. S. Geol. Surv.)

Lapis-lazuli ware. A variety of Wedgwood ware. *See also* Pebble ware.

Lapis ollaris. Soapstone, or talc, a hydrated silicate of magnesium. (Century)

Lápiz (Sp.). 1. Black lead, plumbago. 2. Black chalk; *L. encarnado*, red chalk, red ocher. 3. A black lead pencil. (Halse)

Lapizar (Sp.). A plumbago (graphite) mine or quarry. (Halse)

Lappior (Corn.). A miner who dresses refuse ore. (Min. Jour.)

Lapweld. To weld by overlapping the joints (Standard), as to *lapweld* iron pipe.

Laques (Peru). Water in a vein, as in vugs, or druses. (Halse)

Laramie group. A formation of the Cretaceous and Eocene Tertiary. (Standard)

Lardite. Agalmatolite. (Webster)

Lard stone. A kind of soft stone found in China. *See* Agalmatolite. (Century)

Large (Eng.). The largest lumps of coal sent to the surface, or all coal which is hand-picked or does not pass over screens; also the largest coal which passes over screens. (Gresley)

Larget. A piece of iron cut from a bar and ready to be heated and rolled into a sheet: about 14 pounds. (Standard)

Larguero (Mex.). Cap or side piece in shaft timbering. (Dwight)

Larry; Lorry. 1. A car to which an endless rope is attached, fixed at the inside end of the road, forming part of the appliance for taking up slack rope. *See* Barney. 2. A car with a hopper bottom and adjustable chutes for feeding coke ovens. (Steel)

Lashing. Any of a number of planks nailed inside of several frames or sets in a shaft to keep them together; also called Listing. (Webster)

Lasionite. Same as Wavellite. (Standard)

Lask; Lasque. A thin, flat diamond with a simple facet at the side. Called also Portrait stone. (Standard)

Lassenite. Wadsworth's name for unaltered, glassy trachytes. The name is derived from Lassen's Peak, Cal. (Kemp)

Last lift (No. of Eng.). The last rib or jud to come off a pillar. (Gresley)

Last of the air. 1. (Ark.) That part of the air current which has passed through all the workings of the mine or split; the outtake air. 2. (Ark.) The working place of a mine or split nearest the outtake of the air, or which receives the last of the air current. (Steel)

Latch. 1. (Eng.) To make an underground survey with a dial and chain; or to mark out upon the surface with the same instruments, the position of the workings underneath. (Gresley)
2. (Scot.) A miry place. (Century)

Latches. 1. A synonym for Switch. Applied to the split rail and hinged switches. (McNeil)
2. Hinged switch-points, or short pieces of rail that form rail crossings. (Junction Min. Co. *v.* Ench, 111 Illinois App., p. 348, 1903)

Latchings (Eng.). Diallings or surveys made at a mine (Gresley). *See also* Latch, 1.

Latent heat. The thermal equivalent of the energy expended in melting a unit mass of a solid or vaporizing a unit mass of a liquid; or conversely, the thermal equivalent of energy set free in the process of solidification or liquefaction. (Webster)

Lateral. 1. Belonging to the sides, or to one side. (Roy. Com.)
2. A horizontal mine working.

Lateral cleavage. Cleavage parallel to the lateral planes. (Webster)

Lateral crater. *See* Adventive crater.

Lateral moraine. A ridge of superficial débris collected from higher cliffs, on a lateral margin of a valley glacier (Standard). *See also* Moraine.

Lateral secretion. The theory that the contents of a vein or lode are derived from the adjacent wall rock. (Ore Dep., p. 40)

Lateral stress. A stress at right angles to the strain which produces it. (Century)

Laterite. A name derived from the Latin word for brick earth, and applied many years ago to the red, residual soils, or surface products, that have originated *in situ* from the atmospheric weathering of rocks. They are especially characteristic of the tropics. Though first applied to altered, basaltic rocks in India, laterite has had in later years a general application without regard to the character of the original rock. *Compare* Saprolite. (Kemp)

Lath. A board or plank sharpened at one end, like sheet piling, used in roofing levels or in protecting the sides of a shaft through a stratum of unstable earth (Webster). *See* Spill.

Lath door-set. A weak lath frame surrounding a main doorframe, the space between being for the insertion of spills. (Raymond)

Lathe! or Laith! (Mid.). "Lower the cage!" or, "Lower more rope!" (Gresley)

Lath frame, or crib. A weak lath frame, surrounding a main crib, the space between being for the insertion of piles. (Raymond)

Laths (Corn.). The boards or lagging put behind a frame of timber. (Raymond)

Latite. A name suggested by F. L. Ransome, for the rocks that are between the trachytes and andesites. Latite is meant to be a broad family name and to include the effusive representatives of the plutonic monzonites. Plagioclase and orthoclase are both present in about equal amounts; augite, hornblende, biotite, and olivine vary in relative amounts. The textures may be glassy, felsitic, or porphyritic. The name is derived from the Italian province of Latium but was suggested by studies on Table Mtn., Tuolumne Co., Cal. *Compare* Trachy-dolerite, Ciminite, Vulsinite, Monzonite. (Kemp)

Latitud (Sp.). 1. The distance from the Equator. 2. Breadth, width, or total extension. (Halse)

Latitude. 1. Distance on the earth's surface from the equator, measured in degrees of the meridian. 2. In surveying, the distance between two lines drawn east and west through the extremities of a course; northing or southing. (Standard)

Latón (Mex.). Brass; *L. blanco*, German silver; *L. en hojas*, sheet brass. (Halse)

Latrines. Water-closets either fixed or of a portable nature. The latter are often maintained underground for use of miners.

Latrobite. A pink anorthite from Labrador. (Standard)

Latten. Metal in thin sheets, especially (and originally) brass, which in this form is called also Latten-brass. (Standard)

Latten brass. A metallic compound into which scrap-brass and other ingredients enter, and which is rolled in thin plates. (Century)

Laubanite. A hydrous calcium aluminum silicate, $Ca_2Al_2Si_5O_{15}+6H_2O$. Resembles stilbite. A snow-white mineral. (Dana.)

Laughing gas. Nitrous oxide, N_2O: so called as when inhaled it usually produces exhilaration, which is followed by insensibility. (Century)

Laumontite; Leonhardite; Caporcianite. A hydrous calcium aluminum silicate, $4H_2O.CaO.Al_2O_3.4SiO_2$. (Dana)

Laun. In ceramics, a fine silken sieve through which clay is passed. (Standard)

Launder. A trough, channel, or gutter, by which water is conveyed; specifically in mining, a chute or trough for conveying powdered ore, or for carrying water to or from the crushing apparatus. (Standard)

Laundry box. The box at the surface receiving the water pumped up from below. (Ihlseng)

Laurdalite. A coasely crystalline variety of nephelite-syenite, that is abnormal in having for its feldspar natron-orthoclase, rarely natron-microline, instead of the normal potash orthoclase. The dark silicates are biotite, diallage and olivine. (Kemp)

Laurentian. According to the U. S. Geological Survey, the younger of the two series of rocks comprised in the Archean system, consisting of Igneous rocks which in general underlie, but are intruded into and therefore younger than the rocks of the Keewatin series. Also the corresponding geologic epoch. (La Forge)

Laurvikite. A variety of augite-syenite that contains natron-orthoclase as its chief feldspar and most abundant mineral. The other components are rare plagioclase, pyroxene, biotite, barkevikite or arfvedsonite, olivine, and magnetite. Besides microscopic accessories, nephelite is occasionally present. *Compare* Pulaskite. (Kemp)

Lava. A general name for the molten outpourings of volcanoes. (Kemp) Fluid rock as that which issues from a volcano or a fissure in the earth's surface; also the same material solidified by cooling. It is commonly regarded as a molten rock, but more exactly it is mineral matter dissolved in mineral matter, the solution taking place at high temperatures only. (Webster)

Lava cone. A volcanic cone composed wholly of lava. (Daly, p. 135)

Lavadero (Mex.). 1. Literally, a washing place. A tank with stirring arrangement, to loosen the argentiferous mud from the *patio*, and dilute it with water, so that the silver amalgam may have a chance to settle. An agitator. 2. Placer deposit. (Dwight)
3. The act of washing or dressing ores. *L. de oro*, a gold-washer; an alluvial gold-washing. (Halse)

Lavador (Mex.). 1. A rod, used in drilling, to keep a wet hole clean. The rod is made by striking the end of a long fibrous stick against a harder substance until it is flat and soft. (Dwight)
2. A man employed in cleansing amalgam; an ore-washer. (Halse)

Lava flow; Lava stream. A stream of lava, whether flowing or congealed. (Webster)

Lava millstone. A hard, coarse, basaltic millstone from the neighborhood of the Rhine. (Webster)

Lava pit. A crater that is visibly floored with massive lava, either liquid or solid. (Daly, p. 141)

Lavar. 1. (Sp.) To wash ores, etc. 2. (Colom.) To collect and work the whole product of an alluvial mine. (Halse)

Lava streak. A dike of lava intersecting other rocks. (Standard)

Lavatic. Consisting of or resembling lava. (Standard)

Lavatorio; Lave (Mex.). In the *patio* process, washing the *torta*. (Halse)

Lavatory. A place where gold is obtained by washing. (Standard)

Lava ware. Various coarse articles and utensils made from iron slag, resembling lava in appearance. (Standard)

Lave (Scot.). To raise water out of a hole with a shovel or the hands. (Barrowman)

Lavic. Same as lavatic.

Lavour (Fr.). A vat for washing ore (Davies). *See* Buddle.

Lavra (Brazil). A small alluvial washing. (Lock)

Lavrovite. A pyroxene, colored green by vanadium. (Standard)

Lawn. Same as Laun.

Law of gravitation. The law, discovered by Sir Isaac Newton, that every body attracts every other body with a force that varies directly as the product of the masses of the two bodies under consideration and inversely as the square of the distance between them. (Standard)

Law of mass action. The law that the chemical action of a reacting substance is proportional at any moment to its active mass. (Webster)

Law of superposition. The law that underlying strata must be older than overlying strata where there has been neither inversion nor overthrust. Upon this law all geological chronology is based. (Standard)

Laxite. Wadsworth's name for the fragmental or mechanical rocks, especially when uncousolidated. (Kemp)

Lay. **1.** The direction, or length, of twist of the wires and strands in a rope. (C. M. P.)
2. (Prov. Eng.) A standard of fineness for metals. **3.** To close or withdraw from work: said of collieries. (Standard)
4. A share of profit; specifically, in whaling and sealing, the proportionate share of the profits of a voyage which each officer or member of the crew receives (Century). This term has been introduced into Alaska placer mining where it means a lease worked on shares or royalty. As a *lay* on No. 5 Glacier creek.

Lay-by (Joplin, Mo.). An underground siding at or near a shaft for storing empty mine cars.

Lay day (Scot.). *See* Lie time.

Layer. A bed or stratum of rock. (Buckley)

Layered (No. of Eng.). Choked up with sediment or mud. (Gresley)

Layme (Scot.). Earthenware; lame. (Standard)

Lay operations (Alaska). Mining on a lease or "lay" on an alluvial claim, for which the operator pays the owner a royalty up to 50 per cent on the gross output. *Compare* Lay, 4.

Lay operator (Alaska). A miner who takes a lease or "lay" on an alluvial claim.

Lay out (No. of Eng.). To set out, or put on one side, trams of coal, etc., that have been improperly filled. (Gresley)

Lazada (Sp.). A slip knot. A running noose. (Halse)

Lazadores; Enlazadores (Mex.). Men formerly employed in recruiting Indians for work in the mines, by the process of lassoing them. (Dwight)

Lazo (Sp.). **1.** A bow; a slip knot. **2.** Lasso; a light cord of fiber. (Halse)

Lazuli. Same as Lapis lazuli.

Lazulite. A hydrous, aluminum phosphate, with varying proportions of iron and magnesium, $(Fe\,Mg)O.Al_2O_3.P_2O_5.H_2O$. The mineral is azure blue, usually in pyramidal crystals; also massive. Used as an ornamental stone. (U. S. Geol. Surv.)

Lazulitic. Of, pertaining to, or having the characteristics of lazulite; applied to rocks. (Standard)

Lazurfeldspar. A blue variety of orthoclase, found in Siberia. (Chester)

Lazurite. A sodium aluminum silicate mineral containing sulphur, $Na_4(NaS_3Al)Al_2(SiO_4)_3$, a constituent of lapis lazuli. (Webster)

Lazyback (So. Staff.). The place at the surface where coal is stacked for sale. (Raymond)

Lazy balk (Eng.). A timber placed at the top of a hopper, against which the top of the car strikes in dumping, to prevent the car from falling into the hopper. (G. C. Greenwell)

Lazy kiln (Scot.). A limekiln in which the whole contents are calcined and afterwards removed before refilling. (Barrowman)

Leach. To wash or drain by percolation. To dissolve minerals or metals out of the ore, as by the use of cyanide or chlorine solutions, acids, or water.

Leach hole. A crevice created in land or rock by the action of leaching or constant filtration; a hole or outlet formed in land by the process of percolation (Standard). Also called Sink, or Sink hole.

Leaching. The process of separating metal from salts by treatment with a solvent (Skinner). *See* Lixiviation.

Lead (pronounced *leed*). **1.** Commonly used as a synonym for ledge or lode. Many mining location notices describe the locator's claim as extending a certain number of feet along and so many feet on each side of the "lode, *lead*, vein or ledge." Thus Lead, S. Dak., was so named because of the Homestake "lead." *Blind lead:* A lead or vein that does not outcrop or show at the surface. Used especially at Virginia City, Nev. *Compare* Lode. **2.** Properly, placer gravels. *Blue lead:* A Tertiary river channel at Placerville, Cal. So called because of the bluish-gray color of the gravels. *Deep lead:* Gold-bearing gravels deeply covered with débris or lava; applied particularly to those of Victoria, Australia. (Frank S. Hess). *See also* Lode.
3. (Penn.) A portion of a haulage system covered by a mule or by a locomotive of a maximum distance of, say, three-quarters of a mile. **4.** (Eng.) To haul or draw coal, etc., either by animal or engine power. (Gresley)

Lead. **1.** A metallic element, heavy, pliable, and inelastic, having a bright, bluish color, but easily tarnished to a dull gray. Symbol, Pb; atomic weight, 207.20; specific gravity, 11.4. (Webster)
2. In ceramics, to glaze with powdered metallic lead ore. (Standard)
3. The amount a steam valve is open when a reciprocating engine is on dead center.

Leadage. The distance coal must be hauled from the mine to its place of shipment. (Standard)

Lead ash. The slag of lead. (Standard)

Lead bath. A furnace in which gold or silver ores are smelted with lead. (Standard)

Lead colic. A violent form of intestinal colic, associated with obstinate constipation, produced by chronic lead poisoning. Painter's colic. (Webster)

Lead encephalopathy. The medical term for lead poisoning.

Leader. **1.** A cast- or wrought-iron ring or shoe, bolted to the bottom (often around the outside) of a brick cylinder, a wooden drum, or a wrought-iron cylinder when used for sinking through quicksand or gravel. **2.** (Som.) The slip of a fault. **3.** Any particular or constant bed or band of coal, ironstone, etc., in connection with certain workable beds, serving as a datum line in a mine. **4.** (No. of Eng.) A back or fissure in a coal seam. (Gresley)
5. (Scot.) One who conducts the putting down of a borehole. (Barrowman)
6. (Corn.) A small vein leading to a larger one. (Raymond)

Leader of the lode (Eng.). *See* Leader, 6.

Lead fume. The fume escaping from lead furnaces, and containing both volatilized and mechanically suspended metalliferous compounds. (Raymond)

Lead glance. Same as Galenite; lead sulphide.

Lead glaze. *See* Lead, 2.

Leadhillite. A monoclinic mineral of a yellowish or greenish color consisting of a sulphate and carbonate of lead, perhaps $4PbO.SO_3.2CO_2.H_2O$. (Dana)

Leading (Aust.). The unprofitable gravel above gold-bearing sand. (Skinner)

Leading band (York.). A heading about 18 yards wide driven to the rise and between a pair of bordgates. (Gresley)

Leading bank (York.). A breadth of about 18 yards of coal taken out to the rise between pairs of bordgates.

Leading frames (Eng.). In tunnel work, frames formed to the contour of the invert and the walls, to guide the bricklayers. (Simms)

Leading lengths. *See* Lengths.

Leading man. *See* First man.

Leading place (Scot.). A working place in advance of the others, such as a heading or a level. (Barrowman)

Leadings (1) (Derb.). Small sparry veins in the rock (Min. Jour.). Same as Leader, 3.

Leading winning (Aust.). A heading in advance of the ordinary bords (Power). A leading bank.

Leading wire. A cotton-covered copper wire, usually No. 14 gauge, used for connecting the two free ends of the circuit of the electric blasting caps, in the blast, to the blasting machine. (Du Pont)

Lead lap. 1. A gem-cutter's lap of lead, copper, or iron; also, the entire machine. (Standard)
2. In mechanics, a lap of lead charged with emery and oil. (Webster)

Lead luster. Lead oxide, used as a glaze for ceramic ware. (Standard)

Lead marcasite. A variety of sphalerite, called by miners Blende, Mock lead, or Mock ore.

Lead mill. A leaden disk charged with emery for grinding gems. (Standard)

Lead ocher. Massicot or lead monoxide, PbO. Massive, scaly, or earthy. Color yellow, reddish. (Dana)

Lead palsy. Paralysis due to lead poisoning. (Webster)

Lead paralysis. Paralysis resulting from lead poisoning. (Standard)

Lead poisoning. A morbid condition produced by the cumulative introduction of lead into the system. (Standard)

Lead reeve (Eng.). An officer before whom aggrieved miners lodge their complaints (Standard). A mine foreman.

Lead spar. 1. (Corn.) Anglesite. (Raymond)
2. Cerusite (Standard). The term "spar" is common among miners, and applies to any of the metallic minerals which are cleavable and lustrous.

Lead tree. A crystalline deposit of metallic lead on zinc that has been placed in a solution of acetate of lead. (Standard)

Lead vitriol. Same as Anglesite. (Standard)

Lead works. A place where lead is extracted from the ore. (Century)

Leaf. A very thin sheet or plate of metal, as gold. (Standard)

Lean. Applied to poor ores, or those containing a lower proportion of metal than is usually worked. (Roy. Com.)

Leap (Eng.). A dislocation of strata by faulting. *See* Down-leap and Up-leap. (Gresley)

Leap ore. Tin ore of the poorest quality. (Standard)

Learies (Eng.). Empty places; old workings. (Bainbridge)

Lease. 1. A contract for the possession and profits of lands for a determinate period, in consideration of a recompense of rent. 2. The instrument by which such grant is made. 3. A piece of land leased for mining purposes.

Leaser. A Western colloquialism meaning lessee.

Lea stone (Lanc.). Laminated sandstone. (Gresley)

Leat (Corn.). A watercourse. (Raymond)

Leath (Derb.). The soft part of a vein. (Raymond)

Leather bed (Mid.). A tough leather-like clayey substance in a fault slip, composed of the crushed and fractured ends of the coal measures. (Gresley)

Leather jacket (Aust.). A Ballarat name for clay occurring in cross-courses. (Power)

Leather lap. A disk covered with leather for polishing gems. (Standard)

Leatherstone. A synonym for Mountain leather. (Chester)

Leaving (Corn.). The mineral left after the good ore has been removed (Raymond). Tailings.

Le Blanc process. A process in which, in the manufacture of sodium carbonate (soda-ash), the sodium sulphate, called *salt cake* (made by heating salt with sulphuric acid), is reduced to sodium sulphide by heating with charcoal and limestone, which then yields the impure sodium carbonate called *blackball* or *black-ash.* (Standard)

Lecho (Sp.). 1. A bed; bed of a river. 2. A thin layer or stratum. 3. A smelting mixture as distinguished from fuel. (Halse)

Lechoso (Mex.). Milky; a variety of opal. (Dwight)

Leck. A thick, stony clay. Called also Lack or Leck clay. (Standard)

Leckstone. A granular variety of trap found in Scotland; used for the bottoms of ovens. (Standard)

Led (No. of Eng.). A spare tub, or one that is being loaded while another is being emptied. (Gresley)

Lederite. A brown variety of titanite. (Standard)

Ledge. 1. In mining, ledge is a common name in the Cordilleran region for the lode or for any outcrop supposed to be that of a mineral deposit or vein. It is frequently used to designate a quartz vein (Century). A lode; a limited mass of rock bearing valuable mineral (Webster). *See also* Vein.
2. The term ledge is ordinarily applied to several beds of rock occurring in a quarry. In some instances, however, the term is applied to a single bed. (Buckley)

Ledger (Eng.). Applied to the lower side of a vein. (Bainbridge)

Ledge rock. The true bedrock; distinguished from bowlders or rock that has been moved. (Standard)

Ledger wall. Same as Footwall.

Leelite. A flesh-red variety of orthoclase. (Standard)

Lee process. A process for shaping any of the softer metals or alloys, by simply squeezing it cold through or into a suitably shaped hole. Called also Extrusion or Squirting process. (Webster)

Leer. A small furnace for annealing flint glass. (Ure)

Leering. In glass making, the process of treating in the annealing oven or leer. (Standard)

Lee side. In geology, that side of glaciated rocks that looks away from the quarter whence the ice moves, or moved, as indicated by rough and weathered surfaces: opposed to Shock side or Stoss side. (Standard)

Leet. A stack of peat, properly 24 feet long by 12 feet wide and 12 feet high. (Standard)

Leg. 1. A prop of timber supporting the end of a stull, or cap of a set of timber. (Raymond)
2. (Eng.) A stone that has to be wedged out from beneath a larger one. (Gresley)

Legal geology. *See* Geology.

Legón (Sp.). A small scraping shovel or scraper used underground. (Halse)

Leg piece. The upright timber that supports the cap piece in a mine. (C. and M. M. P.)

Legs. 1. (Aust.) The two sides or wings of a saddle reef or anticline. (Power)
2. The wires attached to and forming a part of an electric blasting cap. (Du Pont)
3. The uprights of a set of mine timbers. *See also* Leg piece.

Legua (Mex.). League; equal to 2.604 English miles or 4.19 kilometers. One square league is called *sitio de ganado mayor*, and is equal to 4338.1123 acres. (Dwight)

Lehm. Same as Loess. (Standard)

Leip (Scot.). *See* Lipe.

Leito (Port.), **Lecho** (Sp.). Bed of a river. (Halse)

Lémnian earth. A variety of clay or aluminous earth, so called from the Island of Lemnos in the Ægean Sea. (Page)

Lemnian reddle (Eng.). An ocher of a deep-red color, occurring in conjunction with the Lemnian earth, and used as a pigment. (Page)

Leña (Mex.). Fuel wood. (Dwight)

Leñador; Leñero (Mex.). Cutter, carrier, or supplier of fuel wood. (Dwight)

Lencheon (Eng.). A shelf of thin rock in a mine shaft. (Bainbridge)

Lengthening rod. A screwed extension rod for prolonging a well-boring auger or bit. (Standard)

Length of shot. The depth of the hole in which the powder is placed, or the size of the block of coal to be loosened by a single blast measured parallel with the hole. (Steel)

Lengths (Eng.). In tunnel construction the successive sections in which a tunnel is executed. *Shaft lengths* are directly under the working shaft; *Side lengths* are on each side of the shaft length; *Leading lengths* are prolongations of the tunnel from the side lengths; *Junction lengths*, which complete the portion of the tunnel extending between two shafts, or between a shaft and an entrance. (Simms)

Lengua (Colom.). That portion of gold which forms in the shape of a tongue when panning. (Halse)

Lengüebuey (Sp. Am.). A tongue-shaped rock. (Lucas)

Lens. A body of ore or rock thick in the middle and thin at the edges; similar to a double convex lens. *See* Lenticular.

Lente (Sp.). 1. Lens. 2. A lenticular mass of rock or ore. (Halse)

Lenticle. A rock stratum or bed, whether large or small, which, from being thin at the edges, is more or less lens-shaped. (Standard)

Lenticular. Shaped approximately like a double convex lens. When a mass of rock thins out from the center to a thin edge all around, it is said to be lenticular in form (Roy. Com.). *See also* Lens.

Lenticule. A small lens-shaped body in a rock-mass. (Standard)

Lentille. An isolated mass of rock containing fossils of a fauna older than the strata in which it occurs, though of contemporary age with those strata. (Winchell)

Lentil. In geology, a lenticular subdivision of a formation. (La Forge)

Lentils. A short name for lenticular beds in a stratified series. (Kemp)

Leopardite. A siliceous rock from North Carolina, spotted with stains of manganese oxide. It is usually considered to be a quartz-porphyry. (Kemp)

Leopard rock. A local name in Canada, applied to pegmatitic rocks that are associated with the apatite veins of Ontario and Quebec. (Kemp)

Leopoldi furnace. A furnace for roasting quicksilver ores, differing from the Bustamente in having a series of brick condensing chambers. Both are intermittent, *i. e.*, have to be charged and fired anew after each operation. The Californian intermittent furnace is a modification of the Leopoldi, having the fireplace on the side. (Raymond)

Lepanto marble. A trade name given to a gray marble enlivened by pink and white fossils; from the Lower Silurian, near Plattsburg, New York. (Merrill)

Lepidolite. A light-colored (pearly, rose-red, violet-gray, lilac, yellowish) lithium-bearing mica. Contains from 3.9 to 5.9 per cent lithia, Li_2O.

Lepidomelane. A mineral, near biotite, but characterized by the presence of a large amount of ferric iron. (Dana)

Leppey (Eng.). Work that is easy, "soft, kind, and winable, without any hardship, as boring, cutting, blasting," etc. (Hunt)

Leptinite; Leptynite. The French synonym for granulite. *See* Granulite (Kemp). *Compare* Whitestone, 2.

Leptoclase. Daubrée's term for minor fractures. (Power)

Leptometer. A specially constructed viscometer, invented by Lepenau. (Mitzakis)

Leptomorphic. A term suggested by Gümbel for crystallized substances that lack definite crystalline borders, as the nephelite in many groundmasses. (Kemp)

Lestiwarite. A name proposed by Rosenbusch for the aplitic dike-rocks that accompany nephelite-syenites in Norway and Finland. They are chiefly or almost entirely alkali feldspar, with very subordinate pyroxene or amphibole. They had been previously called syenite-aplites by W. C. Brögger. Lestiwarite is derived from the Finnish locality Lestiware. (Kemp)

Leuchtenbergite. A variety of clinochlore, white, pale green, or yellowish in color, containing little or no iron; often resembles talc. (Dana)

Leucite. A silicate of potassium and aluminum, $KAl(SiO_3)_2$. The name of the mineral is prefixed to names of many rocks that contain it, as, leucite-absarokite, leucite-syenite, etc. (Kemp)

Leucite-basalt. Basaltic rocks with olivine, in which leucite replaces plagioclase. (Kemp)

Leucite-basanite. Basaltic rocks that contain both leucite and plagioclase. As contrasted with leucite-tephrites, they contain olivine. (Kemp)

Leucite-tephrite. Basaltic rocks without olivine, that contain both plagioclase and leucite. *Compare* Leucite-basanite. (Kemp)

Leucitic. Of, or pertaining to leucite; containing or resembling leucite. (Century)

Leucitite. Basaltic rocks without olivine in which leucite replaces plagioclase. *Compare* Leucite-basalt. (Kemp)

Leucitophyre. A name formerly used for the leucite rocks, but now by common consent restricted to those phonolites that contain both leucite and nephelite. (Kemp)

Leucochalcite. A hydrous arsenate of copper, usually found in white, or greenish, silky, needle-like crystals.

Leucocratic. In petrology, characterized by the dominance of light-colored minerals, like quartz, the feldspars, and muscovite: said of some igneous rocks and contrasted with melanocratic. (La Forge). Leucocratic is derived from two Greek words meaning "white prevails."

Leucopetrite. A substance, between a resin and wax in character, found in a brown coal at Gesterwitz, near Weissenfels; it crystallizes in white needles from ether and boiling absolute alcohol, and melts above 100° C. (Bacon)

Leucophyre. In petrology, a light-colored, felsitic, igneous rock. (La Forge). Originally applied by Gümbel in 1874 to light-colored diabases whose feldspar was altered to saussurite and whose augite had largely changed to chlorite. Rosenbusch restricts it to diabases poor in plagioclase. The name means a light-colored or white porphyritic rock, and has little claim to consideration either in etymology or application. (Kemp)

Leucopyrite. *See* Löllingite.

Levantamiento (Sp.). 1. Elevation. 2. An upheaval. 3. In coal mining, creep. (Halse)

Levantar planos (Sp.). To survey. (Dwight)

Levante. 1. (Mex.). Breast of a stope. *Al levante*, overhand stoping. (Dwight)
2. The operation of taking up the tubes and lines of *aludeles* in order to clean them out and collect the mercury. (Halse)

Levanto (Peru). The removal of the mud heap, after standing for a week, following the addition of the mercury. (Halse)

Levee. An embankment beside a river or stream or an arm of the sea, to prevent overflow. (Standard)

Level. 1. A horizontal passage or drift into or in a mine. It is customary to work mines by levels at regular intervals in depth, numbered in their order below the adit or drainage level, if there be one (Raymond). Rarely applied to coal mining.
2. An instrument for finding a horizontal line or plane, or adjusting something with reference to a horizontal line. (Webster)
3. (Newc.) A gutter for the water to run in. (Min Jour.)

Level course (Scot.). In the direction of the strike of the strata, or at right angles to the dip and rise. (Barrowman)

Level-free. 1. (War.) Old coal or ironstone workings at the outcrop, worked by means of an adit driven into the hillside. (Gresley)
2. A mine that discharges water by gravitation. (Roy)

Leveling. In surveying, the operation of ascertaining the comparative levels of different points of land, for the purpose of laying out a grade, etc., by sighting through a leveling instrument at one point to a leveling staff at another point. (Standard)

Leveling instrument. A surveyor's level bearing a telescope. (Standard). *See* Level, 2.

Leveling pole, rod, staff. *See* Level rod.

Level rod. A graduated rod used in measuring the distance between points on the ground and the line of sight of a leveling instrument. (Webster)

Level stones (Scot.). Stones on the surface of the ground indicating the direction of old levels underground. (Barrowman)

Level tons (Eng.). A weight of mineral in even tons, any odd cwts. not being taken into account. (Gresley)

Leveret skin. A Japanese glaze applied to ceramic ware, supposed to resemble a leveret's fur. (Standard)

Leverman. One who operates brakes, or levers, at the top of an incline plane. A brakeman.

Levigation. A rubbing down to a powder. Levigation is distinguished from trituration by being done with water, while the latter is the dry method. (Oldham)

Levitation. The act of rendering light or buoyant, Latin, *levitas*, lightness, from *levis*, light. (Rickard)

Lewis. An iron device in the shape of a dove-tailed tenon, made of several parts, inserted into a dove-tail mortise in a large stone, for the purpose of attaching a hoisting apparatus. (Standard)

Lewis bolt. A wedge-shaped bolt fastened in a socket by pouring in melted lead, and used in raising a heavy block, as of stone. (Standard). *Compare* Lewis pin.

Lewis hole. 1. A series of two or more holes drilled as closely together as possible, but then conected by knocking out the thin partition between them, forming thus one wide hole, having its greatest diameter in a plane with the desired rift. Blasts from such holes are wedgelike in their action, and by means of them larger and better-shaped blocks can be taken out than would otherwise be possible. (Merrill)
2. A dove-tail mortise, as in a block of stone, for attaching a lewis for hoisting. (Standard)

Lewis pin. A pin used for attachment to a key block. It is placed in a shallow drill hole with a wedge at either side, and as the pin is larger at the bottom than near the top, when it is pulled upward it tends to tighten on the wedges, which prevents it from slipping out. (Bowles)

Ley (Sp.). 1. Literally, law; *L. de minas*, law of mines. 2. In mining. the proportion of precious and other metals in any mineral compound. Grade of ore (Dwight). *L. de oro*, quantity of gold contained in the silver. *L. de plata*, quantity of silver contained in the ore (Min. Jour.). *L. media*, average grade.

Ley de oro (Mex.). Properly the fineness of the gold, but apparently also applied to the assay-value of an ore. (Lock)

Ley pewter. A low-grade pewter having an excessive proportion of lead. (Standard)

Leys; Blue leys (Lanc.). Same as Bind, 1.

Lherzolite. A variety of peridotite, containing olivine, diopside, and an orthorhombic pyroxene. (Kemp)

Lias. 1. The oldest and lowest of the series comprised in the Jurassic system of strata in Europe. (La Forge)
2. A lithographic stone. (Ure)

Liassic. Belonging to the geological subdivision of the Jurassic called the Lias (Century). *See* Lias, 1.

Liber. An iron shaft by which a horse draws a number of cars in a coal mine (Standard). An erroneous spelling of "Limber," *which see.*

Libethenite. An olive-green to dark green hydrous basic phosphate of copper, $Cu_3(PO_4)_2.Cu(OH)_2$. (Dana)

Libollite. A kind of asphalt occurring near Libollo, in western Africa; it resembles albertite. (Bacon)

Libramiento (Sp.). Warrant for payment for bars of gold or silver delivered at the mint, or order for funds. (Min. Jour.)

Libranza (Sp.). A bill of exchange; a draft or check. (Halse)

Libreta (Sp.). 1. A surveyor's notebook. 2. *L. de mina*, a mine notebook. (Halse)

Libro (Sp.). A book; *L. de agrimensor*, a surveyor's field book. (Halse)

Lick. A swampy area surrounding a salt spring, the soil of which is licked up by animals frequenting it. (Oldham)

Licuación (Mex.). Liquation. (Dwight)

Lid. 1. (Eng.) A flat piece of wood placed between the end of a prop or stempel and the rock. (Raymond).
2. (Forest of Dean). The roof of an ironstone working. (Gresley)
3. (Scot.). The cover or flap of a valve. (Barrowman)
4. A cross-beam on an upright prop. (Standard)

Lidded (Eng.). Applied to the contracted top of a pipe vein. (Bainbridge)

Lidstone (Forest of Dean). The roofstone of an iron mine. (Gresley)

Lie. 1. (Scot.) To become quiet or inactive (Century). Said of a mine that is idle.
2. (Scot.) The line, direction, or bearing as of a vein, lode, or fault.

Lie! or Lie up! (Scot.). In mine haulage, a command to stop. (Barrowman)

Liebenerite-porphyry. Nephelite-porphyry whose nephelite phenocrysts are altered to muscovite. Its original locality is near Predazzo, in the Tyrol. *Compare* Gieseckite-porphyry. (Kemp)

Lie days (Scot.). *See* Lie time, 1.

Liège furnace. *See* Belgian zinc furnace; *also* Belgian process.

Lie key (Scot.). A tool on which boring rods are hung when being raised or lowered in a borehole. (Barrowman)

Lie time. 1. (Scot.) The time for making up accounts preceding each pay day in which work has been done, but payment for which has to remain or lie over till next pay day. (Barrowman)
2. (Scot.) A period of rest or cessation from work during a shift or turn. (Gresley)

Lievrite. *See* Ilvaite.

Life. When in cutting or getting coal it makes a crackling or bursting noise and works easily, it is said to have life in it, or to be alive. (Gresley)

Lift. 1. The vertical height traveled by a cage in a shaft. 2. The *lift of a pump* is the vertical distance from the level of the water in the sump to the point of discharge. 3. The distance between the first level and the surface, or between any two levels. 4. Any of the various gangways from which coal is raised at a slope colliery. The term originally referred to the number of pump lifts, but in the anthracite regions its significance has become broader. (Chance)
5. (Scot.) A set of pumps from the suction to the delivery box; the uppermost set is called the lift, the lowest the bottom or laigh lift. (Barrowman)
6. (Aust.) A slice taken off a pillar when winning it. (Power)
7. A certain thickness of coal worked in one operation. 8. (No. of Eng.) To clear gas out of a working place. 9. To creep, as when the floor rises or lifts. 10. A broken jud. 11. (Penn.) A block of coal measuring three-quarters of a mile on the strike by 1,000 yards to the rise. 12. (Forest of Dean) A rise in the price of coal or in miners' wages. 13. To break up, bench, or blast coal from the bottom of the seam upward. 14. A certain vertical thickness of coal seams and measures, having considerable inclination, between or in which the workings are being carried on to the rise, all the coal being raised from one shaft bottom. (Gresley)
15. The plane approximately parallel with the floor of the quarry, along which the stone is usually split in quarrying. (Buckley)

Lifter. 1. (Eng.). The stem of iron or wood attached to the stamp-head. (Hunt)
2. Any of the boreholes for blasting that are drilled horizontally or nearly so and usually at about the floor level. (Du Pont)
3. A molder's tool for handling sand. (Standard)

Lift hammer. *See* Tilt hammer.

Lifting (Scot.). Drawing hutches (cars) out of the working places into the main roads. (Gresley)

Lifting dog. A claw hook for grasping a column of bore-rods while raising or lowering them. (Raymond)

Lifting guard. Fencing placed around the mouth of a shaft, and lifted out of the way by the ascending cage. (Steel)

Lifting set. A series of pumps or sets of pumps by which water is lifted from the mine in successive stages (Standard). *See* Lift, 5.

Lifting wicket (So. Wales). *See* Lifting guard.

Lift pump. A pump for lifting to its own level, as distinguished from a force pump (Standard). A suction pump.

Liga (Mex.). Alloy; lead flux for smelting dry ores; galena rich in silver. (Dwight)

Ligar (Sp.). To alloy gold or silver for coinage. (Halse)

Light coal (Scot.) Candle coal; gas coal, *which see.* (Barrowman)

Lightening. A peculiar brightening of molten silver, indicating that maximum purity has been attained (Standard). Occurs in cupellation. *See* Blick.

Lighting. In metallurgy, annealing. (Standard)

Light metal. A metal or alloy having a density of less than five times that of water. (Standard)

Lightning explosion (Eng.). An explosion of fire damp caused by an electric current, during a thunderstorm, entering a mine and igniting the gas. (Gresley)

Light, polarized. Light in which the vibrations are in one plane.

Light red silver ore. *See* Proustite.

Light ruby silver. *See* Proustite.

Lignite. A brownish-black coal in which the alteration of vegetal material has proceeded further than in peat but not so far as sub-bituminous coal. (U. S. Geol. Surv.)

Lignitic. Containing lignite.

Lignitic group. A lignitiferous series of sands and clays of the Cretaceous and Tertiary of the United States; the Laramie group (Standard). The term is now obsolete.

Lignitiferous. Lignite-bearing. (Standard)

Lignitize. To convert into lignite. (Century)

Lignito (Sp.). Lignite or brown coal. (Halse)

Ligurite. An apple-green variety of titanite. (Standard)

Likely. A belt of country or a lode is said to be likely when there are indications of valuable minerals; opposed to hungry. (Power)

Lilin Kalulut (Malay). A wax used by gold assayers. (Lock)

Lima (Mex.). File. (Dwight)

Limadura (Sp.). **1.** Act of filing. **2.** filings. **3.** Refined silver from the *patio* process. **4.** Silver amalgam in a finely divided condition. Floured mercury. (Halse)

Limb. **1.** One of the two parts of an anticline or syncline on either side of the axis. *See* Legs, 1. **2.** The graduated margin of an arc or circle in an instrument for measuring angles. **3.** The graduated staff of a leveling rod. (Webster)

Limber; Limmer (Eng.). A light, wooden or iron shaft for attaching pit ponies to the trams. (Gresley)

Limburgite. A vitrophyric igneous rock, resembling basalt, containing olivine and augite in a glassy groundmass. The name is derived from Limburg, a locality on the Kaiserstuhl, a basaltic mountain in Baden. It was suggested by Rosenbusch in 1872, and at the same time Boricky described similar rocks from Bohemia as magmabasalt. (Kemp)

Lime. An alkaline earth consisting of the oxide of calcium. Artificially made by calcining or burning limestone or marble. Lime made from dolomitic limestone contains a considerable percentage of magnesia, and is slower setting (Frank L. Hess)

Lime burner. One who burns limestone, etc., to make lime. (Webster)

Lime cartridge. A charge or measured quantity of compressed dry caustic lime made up into a cartridge and used instead of gunpowder for breaking down coal. Water is applied to the cartridge, and the expansion breaks down the coal without producing a flame. (Steel)

Lime catcher. A filtering apparatus for extracting calcium salts from the feed water of a steam boiler, thus preventing the deposit of scale in the boiler. (Standard)

Lime coal (Scot.). Small coal used for burning lime, being one of the grades of coal in the east of Scotland in former times. (Barrowman)

Lime craig (Scot.). Limestone rock *in situ;* the face of a limestone quarry. (Barrowman)

Lime feldspar. *See* Anorthite.

Lime kiln. A kiln or furnace in which limestone or shells are burned and reduced to lime. (Webster)

Lime man. One who attends to slaking lime; running lime water to vats beneath pig-machine molds at blast furnaces, and operates lime sprays when the machine is running. (Willcox)

Lime pit. **1.** A limestone quarry. **2.** A pit where lime is made. **3.** A pit where lime is used, as in liming hides. (Webster)

Lime powder. Air-slaked lime. (Webster)

Lime process. The method of mining coal by the use of the lime cartridge. (Gresley)

Limerickite. A very dark, violet, oölitic rock found in the meteorite of Oschausk. (Standard)

Lime rock. Any rock or stratum in which limestone is a prominent ingredient (Standard). Limestone.

Limeshells (Scot.). Calcined limestone. (Barrowman)

Limestone. The general name for sedimentary rocks composed essentially of calcium carbonate. (Kemp)

Limestone meter. An instrument for determining the proportion of calcareous matter in soils. (Century)

Limestone sink. A depression in the land surface in a limestone region, often communicating with a cavern or subterranean passage so that wa-

ter running into it is lost. Called also, Sink hole, Swallow hole. (Webster). Caused by the falling in of the roof of a cave, due to the solution and removal of limestone that supported the overburden.

Lime uranite. *See* Uranite.

Lime wash. To wash with a solution of lime; to whitewash. (Webster)

Lime wavellite. An impure variety of wavellite that contains calcium. (Standard)

Limmers (Newc.). The shafts by which the horses draw mine cars. (Min. Jour.). *See also* Limber.

Limnite. A yellow ocher or brown iron ore, containing more water than limonite. (Century)

Limo (Sp.). Slime; mud. (Halse)

Limonite. Brown, hydrous oxide of iron containing, when pure, 85.6 per cent of iron and 14.4 per cent of water. The mineral is earthy or of irregular form, never in distinct crystals. It is the usual product left behind in the oxidation of pyrite, chalcopyrite and other iron-bearing minerals. *See* Brown iron ore.

Limonitic. Consisting of limonite, or resembling it in appearance. (Century)

Limonitization. The process of altering to, or supplying with, limonite. (Standard)

Limp. A sheet-iron or wooden scraper, for removing poor ore from the top of a sieve (Standard). Spelled Limpeth in Derbyshire.

Limpeth. *See* Limp.

Limpia (Sp.). 1. Deads or low-grade ore. 2. Clearing out rubbish or waste from mine workings. (Halse)

Limpiador (Sp.). 1. An ore-sorter. 2. A tool for cleaning a borehole. (Halse)

Limpio (Sp.). 1. Clean; free. 2. Cobbed or picked ore. (Halse)

Limurite. A name for a rock consisting of axinite, pyroxene, amphibole, quartz, titanite, calcite, pyrite, and pyrrhotite. It occurs on the contact of granite and limestone, although formerly thought to be a member of the crystalline schists. (Kemp)

Linarite. A natural, hydrous, basic sulphate of lead and copper, $PbO.CuO.SO_3H_2O$. (U. S. Geol. Surv.)

Lind coal. Charcoal made of the wood of the linden tree. (Century)

Lindero (Sp.). Boundary or limit of a claim or mine. (Halse)

Lindöite. A quartz-bearing aplitic variety of syenite (La Forge). Brögger's name for certain dike rocks, in the region of Kristiana. They have trachytic texture; are seldom and then but slightly porphyritic; are medium to coarsely crystalline in the larger dikes; possess light colors and often lack dark-colored minerals. When such are recognizable they are pyrite and chlorite. Ferriferous carbonates are present. Traces of aegirite and of a dark, alkaline hornblende may be occasionally detected. (Kemp)

Line. 1. The limit of a surface; a length without breadth; outline; contour. 2. The course in which anything proceeds, or which any one takes; direction given or assured. 3. A unit of length, equal to one twelfth of an inch (Century). 4. *See* Plumb line.

Línea (Sp.). A line; *L. de base*, a base line in surveying; *L. de demarcación*, a boundary line. (Halse)

Lined gold. Gold foil backed with other metal. (Standard)

Lineman. 1. In surveying, a man who carries the tape line or chain (Standard). Also called Chainman.
2. One in charge of maintenance of light and power electric circuits at blast furnaces. Sometimes including switchboard; usually an "inspector" takes charge at the switchboard. (Willcox)

Line of bearing. The direction of the strike, or outcrop. (Thompson)

Line of dip. The line of greatest inclination of a stratum to the horizon. (Thompson)

Line of force. A straight line through the point of application of a force and in the direction of its action. (Century)

Line of tunnel. The width marked by the exterior lines or sides of a tunnel. (Corning Tunnel, etc., Co., *v.* Pell, 1 Colorado, p. 510)

Liner (Leic.). A bar put up between two other bars to assist in carrying the roof. (Gresley)

Lines. Plumb lines, not less than two in number, hung from hooks driven in wooden plugs. A line drawn

through the center of the two strings or wires, as the case may be, represents the bearing or course to be driven on. (Steel)

Lingot. 1. An iron ingot-mold. 2. An ingot, or something resembling one. (Standard)

Lingote (Sp.). An ingot; a mass of gold or silver; *L. de plomo*, a pig of lead. (Halse)

Lining. 1. (Derb.) Clay ironstone in beds or bands. (Gresley)
2. The plank arranged against framed sets. (C. and M. M. P.)
3. (Newc.) Same as Dialling. (Raymond)
4. A protecting coating on the boshes of puddling furnaces, or on the interior of blast furnaces. (Standard)

Lining mark (Eng.). A drill hole in the mine roof with a wooden plug driven into it from which to hang a plumb line. (G. C. Greenwell)

Lining sight. An instrument consisting essentially of a plate with a longitudinal slot in the middle, and the means of suspending it vertically. It is used in conjunction with a plumb line for directing the courses of underground drifts, headings, etc. (Webster)

Lining up a mine. In surveying, placing the sights for driving entries, drifts, or rooms nearer the working face. (Steel)

Link. One of the links of a surveyor's chain and equal to 7.92 inches. (Webster)

Linked vein. A steplike vein in which the ore follows one fissure for a short distance, then passes by a cross fissure to another nearly parallel, and so on. (S. F. Emmons)

Linnæite; Cobalt pyrite. A sulphide of cobalt, Co_3S_4. A part of the cobalt is nearly always replaced by nickel and to a less extent by iron and copper. (U. S. Geol. Surv.)

Linn and wool (Lanc.). Streaky gray sandstone. (Gresley)

Linnets (Derb.). Oxidized lead ores. (Raymond)

Linophyre. A rock in which the phenocrysts are arranged in lines or streaks. (Iddings, Igneous Rocks, p. 224)

Linseed earth (Shrop.). A dark gray clay suitable for making fire brick. (Gresley)

Linsey (Lanc.). Strong bind; also streaky sandstone (Gresley). A kind of clay rock.

Linternilla (Mex.). The drum of a horse whim. (Dwight)

Lip. 1. (Mid.). The lower part of the roof of a gate-road near the face, taken down as the face advances.
2. The edge of a front slip. (Gresley)
3. The digging edge of a dredge bucket. (Weatherbe, p. 145)

Liparite. A synonym for **Rhyolite**, and largely used among Europeans, though rhyolite is chiefly current in America and England. The name is derived from the Lipari Islands, off the coast of Italy, where this rock is abundant. It was proposed by Justus Roth in 1861. (Kemp)

Lipe; Lype; Leip (Scot.). A small hitch or irregularity in the joints of a coal seam. (Barrowman)

Lipey blaes (Scot.). Lumpy bind or shale. (Gresley)

Lipis (Sp.). Blue vitriol; copper sulphate. (Halse)

Lip of shaft (Eng.). The bottom edge of a shaft circle where open to the seam workings. (G. C. Greenwell)

Lip screen. A small screen or screen bars, placed at the draw hole of a coal pocket to take out the fine coal. (Steel)

Lipta (Peru and Bol.). Ash-colored or gray silver ores, accompanying tin lodes. (Dwight)

Liquation; Eliquation. 1. Separating an alloy by heating it so as to melt the more fusible of its ingredients, but not the less fusible. (Raymond)
2. As applied to the sulphur industry, a method of recovering sulphur by liquefying under pressure and heat and drawing off the molten sulphur and allowing it to solidify.

Liquation furnace. A furnace specially adapted to liquation. (Century)

Liquation hearth. A hearth specially adapted to liquation. (Century)

Liquefaction. The act or process of liquefying, or of rendering or becoming liquid; reduction to a liquid state. (Century)

Liquid fuels. The liquid fuels most frequently used are: Petroleum and refinery residues, shale oil, tar from the dry distillation of coal and wood, the tar oils obtained by the distilla-

tion of coal tar, benzine, and denatured, methylated, or wood alcohol. (Bacon)

Liroconite. A natural hydrous arsenate of aluminum and copper, occurring in bluish-green crystals. (Chester)

Lis (Mex.). The flouring of mercury. (Dwight)

Liso (Colom.). 1. A slickenside. 2. A fault. 3. A slide. 4. The flat and extensive face of a rock. (Halse)

Lissen (Eng.). A cleft in a rock. (Century)

List (Eng.). A mine inspector's term for the schedule of particulars of accidents. (Gresley)

Lista (Mex.). In the *patio* process, a tail of impure mercury. (Halse)

Listing. *See* Lashing.

List mill. In gem cutting, a wheel covered with list or cloth, on which the gems are polished. (Standard)

List pan. A perforated skimmer for skimming molten tin. (Standard)

List pot. In tin-plate manufacturing, the last of a series of five pots used in coating the plates. (Standard)

Listvenite. A local name for a rock in the gold-mining district of Beresov, in the Urals. It is regarded as a contact zone produced from dolomite, and is a coarsely crystalline aggregate of magnesite, talc, quartz, and limonite, pseudomorphic after pyrite. (Kemp)

Litchfieldite. A variety of nephelite syenite, whose chief feldspar is albite and which differs therein from normal nephelite syenite. (Kemp)

Liter; Litre. A measure of capacity in the metric system, being a cubic decimeter, equal to 61.022 cubic inches, or 0.880 imperial quart, or 0.908 U. S. dry quart, or 1.0567 U. S. liquid quarts. It is equal to one kilogram of water at maximum density. (Webster)

Litharge. Lead monoxide, PbO, made by heating lead moderately in a current of air. It is straw-yellow, and is used as a pigment, in making flint glass, and for glazing pottery. Callled also Massicot (Standard). Also used in assaying.

Lithia mica. *See* Lepidolite.

Lithical. A term proposed by L. Fletcher for the finer, textural characters of rocks, *i. e.*, those for which texture, as distinguished from structure, is employed above. Lithical, from the Greek for stone, is contrasted with petrical, from the Greek for rock. (Kemp)

Lithionite. Same as Lepidolite. A lithia mica.

Lithiophilite; Triphylite. A phosphate of iron, manganese and lithium, $Li(Fe,Mn)PO_4$, varying from the bluish-gray triphylite with little manganese to the salmon-pink or clove-brown lithiophilite with but little iron. (Dana)

Lithiaphorite. A manganese mineral near psilomelane, containing some lithium. (Chester)

Lithium. A soft, silver-white metallic element of the alkali group, the lightest metal known. Symbol, Li; atomic weight, 6.94; specific gravity, 0.59. (Webster)

Lithoclase. Daubré's term for divisional planes due to rupture. (Power)

Lithoclast. One who breaks stones. (Century)

Lithofracteur. Nitro-glycerine mixed with siliceous earth, charcoal, sodium and sometimes barium, nitrate, and sulphur. (Raymond)

Lithogensy. The science of the origin of minerals and of the causes of their modes of occurrence. (Standard)

Lithoglyph. A carving or engraving on a stone or gem; also, a stone or gem so engraved. (Standard)

Lithoglyptics. The art of gem-cutting; the cutting or engraving of precious stones or gems. (Standard)

Lithographic slate. *See* Lithographic stone.

Lithographic stone. A fine-grained homogeneous limestone suitable for etching. (U. S. Geol. Surv.)

Lithoidal. A descriptive term applied to those groundmasses, especially of rhyolites, that are excessively finely crystalline, like porcelain, as distinguished from glassy varieties. The English equivalent 'stony' is also used. (Kemp)

Lithologic. Pertaining to lithology, or the study of rocks. Pertaining to rock character. *See* Petrology. (Ransome)

Lithologist. A student of or specialist in lithology. (Standard)

Lithology; Petrology. The study of rocks as such; a branch of geology much developed in recent years. By making thin sections and examining them under the microscope the nature of a rock may be determined as well for most purposes as by chemical analysis. (Roy. Com.)

Lithomarge. A smooth, compact variety of common kaolin. (Dana)

Lithophosphor. A mineral, as barite, that becomes phosphorescent when heated. (Standard)

Lithophyl. A petrified leaf or its impression, or a stone containing such petrifaction. (Standard)

Lithophysa. In petrology a variety of spherulite consisting of concentric, roughly spherical or hemispherical shells with thin vacant spaces between them (La Forge). Literally a "stone bubble," a name applied to those cellular cavities in acidic lavas, obsidian, rhyolite, etc., that have concentric walls, and that are caused by a special development of mineralizers at that particular point.

Lithopone. A mixture of zinc sulphide and barium sulphate, prepared by precipitation, and used extensively as a pigment; also used in the manufacture of linoleum, rubber tires, etc.

Lithosphere. In geology, broadly, the solid globe of the earth, as contrasted with the enveloping hydrosphere and atmosphere. Especially the earth's crust; the outermost portion or shell of the globe, of unknown thickness, which is believed from direct observation or reasonable deduction to consist of solid rock, as distinguished from the unknown barysphere or centrosphere. (La Forge)

Litmus paper. A paper dipped into a solution of litmus, and used to test solutions in order to determine whether they are acid or alkaline. (Standard)

Little giant. A jointed iron nozzle used in hydraulic mining. *See* Giant. (Hanks)

Little Jap. *See* Rock drill.

Little tops (Aust.). A local name given to a thin band of coal occurring above the main seam. (Power)

Little winds. 1. (Corn.) A sump. 2. An underground shaft, sunk from a horizontal drift (Pryce). A winze.

Littoral. Of or pertaining to a shore. A coastal region. (Webster)

Littoral rocks. Rocks composed of coarse material deposited within the limits of the littoral zone, and so subjected to the winds and tides. (Standard)

Live. 'Charged with electricity' to such a potential as to be in a condition to give a dangerous electric shock. (H. H. Clark)

Live load. In mechanics, a load that is variable, in distinction to a constant load. (C. and M. M. P.)

Live lode. A lode containing valuable minerals.

Lively coal (Ark.). Small, and generally hard coal that may be chipped off in good-sized pieces while being undermined or sheared with a pick. (Steel)

Live quartz. A variety of quartz usually associated with a valuable mineral. (Ihlseng)

Liver opal. A synonym for Menilite (Chester). A dull-gray opaque concretionary opal.

Liver ore. A liver-brown variety of cuprite; also applied to a variety of cinnabar. (Power)

Liver pyrites. A massive form of iron sulphide (marcasite and sometimes also pyrite and pyrrhotite) having a dull liver-brown color. (Century)

Liver rock. A variety of sandstone which breaks or cuts as readily in one direction as in another. In other words, the working of the stone is not affected by stratification. (Merrill)

Liverstone. A variety of barite that gives off a fetid odor when rubbed or heated. (Century)

Live steam. Steam direct from the boiler, having its full power of expansion,—distinguished from exhaust steam, which has been deprived of its available energy. (Webster)

Living rock. Rock in its original or native state or location; rock not quarried. (Webster)

Livingstonite. A natural mercury-antimony sulphide, $H_8S.2Sb_2S_3$. Resembles stibnite in form. Color lead-gray; streak red. (Dana)

Lixiviar (Sp.). To leach; lixiviate. (Lucas)

Lixiviation. The separation of a soluble from an insoluble material by means of washing with a solvent (Raymond). Used in certain metallurgical processes. *See* Augustin, Patera, Russell, and Ziervogel processes.

Lizard. A forked piece of timber used as a stone sled; a stone-boat. (Standard)

Lizard stone. A kind of serpentine from Lizard Point, Cornwall, England. (Webster)

Lizote (Mex.). Quartz containing blue specks, and often rich in silver. (Halse)

Llamar (Mex.). To signal for the cage or bucket. (Dwight)

Llampera (Chile). A deposit containing ore in a fine or friable condition. (Halse)

Llamperos (Chile). Many small fissures filled with copper ore, traversing igneous rocks. (Halse)

Llampu. 1. (Bol.) A thin layer (*guia*) formed of isolated crystals of cassiterite in decomposed feldspar. (Halse)
2. (Peru) Fine ore passing through ½ to ¾ inch screen. (Pfordte)

Llanca (Chile). A copper silicate. (Halse)

Llano (Sp.). A plain; land more or less horizontal with but few elevations. (Halse)

Llanta (Sp.). The tire of a wheel. (Halse)

Llanura (Mex.). An extensive plain. (Dwight)

Llapa (Peru). 1. An additional quantity of mercury added. 2. A gratuity given to a buyer. (Halse)

Llapar (Peru). To add quicksilver to the pulp when the amount already added is in the condition of amalgam. (Dwight)

Llauca (Peru). 1. Taking down the vein, when softer than the wall, by using rods 7 to 10 feet long. The wall is subsequently taken down until ample working width is obtained. 2. A black clay found in veins. (Halse)

Llave (Sp.). 1. A key, or wrench. 2. Any piece of mine timber. 3. Any barren piece of ground left as a support in mines. (Halse)

Lleira (Sp.). A place full of pebbles or coarse gravel. (Halse)

Llenadores (Braz.). Bucket fillers. (Halse)

Llicteria (Peru). A Bolivian ore containing lead, tin, zinc, and silver. (Dwight)

Llimpi (Peru). Ores of red color, generally cinnabar. (Dwight)

Llinqui (Peru). Sterile strata in alluvial deposits, composed of argillaceous material of glacial origin. (Halse)

Load. 1. (Scot.) An old measure of weight for coal. (Barrowman)
2. The resistance, to a motor or engine, of the machinery that it drives, apart from its own friction. 3. Downward pressure on a structure caused by gravity alone (dead load) or by gravity increased by the stress of transverse motion (live load), as in the case of a train crossing a bridge. (Standard)

Load dropper; Car dropper (Ark.). A person who runs loaded cars down a gently inclined track, one at a time. (Steel)

Loaded track. A track used for loaded mine cars. (Steel)

Loader. The man who loads coal at the working face after the coal has been shot down. He also keeps the working place in order. (Steel)

Loader-off (Eng.). A man who regulates the sending out of the full cars from a longwall stall, or gate. (Gresley)

Loading pick (Eng.). A pick for cleaning coal. (Bainbridge)

Loadings (Eng.). Pillars of masonry carrying a winding drum or pulley. (Gresley)

Load of ore (Derb.). At mines where ore is not weighed, a measure of 9 dishes. *See* Dish, 1. (Mander)

Load-out. To load coal or rock that is to be taken out of the mine. (Steel)

Loadstone; Lodestone. A piece of magnetite possessing polarity like a magnetic needle (Webster). Also called Loadstar, Lodestar.

Load stress. The stress produced by a load. (C. M. P.)

Loam. 1. A potter's clay, containing mica or iron ocher. An impure clay. (Raymond)
2. Earthy matter composed of clay and sand, enough of the latter being present to counteract the cohering property of the clay, or of particles intermediate in size between those of clay and sand, as loess. (Webster)
3. In founding, a mixture of sand and clay, to which straw, horse dung, or other binding material is frequently added. Used to make molds for iron or brass castings. (Standard)

Loam beater. A rammer used in making a loam mold. (Standard)

Loam board. A founder's tool and templet used in making cores of loam. (Century)

Loam box. A container in which loam is boiled in water by leading a steam pipe into the mixture. The mixture is used in blast-furnace runners. (Willcox)

Loam cake. A disk of dried loam used to cover a loam mold, having holes through which melted metal is poured and air escapes. (Standard)

Loam casting. A casting made in a loam mold. (Standard)

Loam mold. A founder's mold made of loam, and usually requiring no pattern. (Standard)

Loam molding. The act or operation of sweeping up a mold in loam, by templates; distinguished from dry-sand molding. (Standard)

Lobbs (Eng.). Underground stairs; also, applied to a vein irregular in descent. (Bainbridge)

Lob of gold. A small but rich deposit of gold. (Skinner)

Local metamorphism. Contact metamorphism, as distinguished from regional metamorphism. (Kemp)

Locate. To mark out the boundaries of a mining claim and establish the right of possession. (Skinner)

Location. 1. The act of fixing the boundaries of a mining claim, according to law. 2. The claim itself. (Raymond)
3. The steps taken by the locator to indicate the place and extent of the surface which he desires to acquire, including the placing of a notice on the ground in some conspicuous position giving the name of the locator, with the requisite description of the extent and boundaries. (Penbody Gold Mining Co. *v.* Gold Hill Mining Co., 97 Fed. Rept., p. 661; Smelting Co. *v.* Kemp, 104 United States, p. 661; Del Monte Mining, etc., Co. *v.* Last Chance Mining, etc., Co., 171 United States, p. 74; Collins *v.* Bubb, 73 Fed. Rept., p. 739) (Also U. S. Min. Stat., p. 51)
4. A place of residence or settlement; a subdivision of a county (Webster)
5. A townsite in a mining or lumbering district.

Location survey. 1. *See* Location, 1.
2. Laying out the line of railroad or canal, or the like.

Location work. Labor required by law to be done on mining claims within 60 days of location, in order to establish ownership (Weed). Synonymous with Assessment work.

Loch; Loch holes (Derb. and Wales). Large cavities in veins in which spar is found (Power). *See* Vug.

Lock band. A course of bond stones in masonry construction. (Webster)

Locked-wire rope. A rope with a smooth cylindrical surface, the outer wires of which are drawn to such shape that each one interlocks with the other and the wires are disposed in concentric layers about a wire core instead of in strands. Particularly adapted for haulage and rope-transmission purposes. (C. M. P.)

Lockout. Refusal of an employer to furnish work to employees, used as a means of coercion. *Compare* Strike, 4. (Webster)

Lock piece (Eng.). A piece of timber for supporting the mine workings (Bainbridge). *See* Lock timber.

Lock timber. An old plan of putting in stull pieces in Cornwall and Devon. The pieces were called lock pieces. (Raymond)

Lodar; Enlodar (Sp.). To line wet blasting holes with clay. (Halse)

Lode (Corn.). Strictly a fissure in the country-rock filled with mineral; usually applied to metalliferous lodes. In general miners' usage, a lode, vein, or ledge is a tabular deposit of valuable mineral between definite boundaries. Whether it be a fissure formation or not is not always known, and does not affect the legal title under the United States Federal and local statutes and customs relative to lodes. But it must not be a placer, *i. e.*, it must consist

of quartz or other rock in place, and bearing valuable mineral. (Raymond)

As used by miners, before being defined by any authority, the term "lode" simply meant that formation by which the miner could be led or guided. It is an alteration of the verb "lead;" and whatever the miner could follow, expecting to find ore, was his lode. Some formation within which he could find ore, and out of which he could not expect to find ore, was his lode. (Eureka Cons. Min. Co. *v.* Richmond Min. Co., 4 Sawyer, p. 311; 8 Federal Cas., p. 819; Ambergris Min. Co. *v.* Day, 12 Idaho, p. 115; 85 Pacific, p. 109; Harrington *v.* Chambers, 3 Utah, p. 94; 1 Pacific, p. 362.) Lode, as used by miners, is nearly synonymous with the term vein, as employed by geologists. The word should not be used for a flat or stratified mass. *See* Ledge, 1, Lead, 1, Fissure, Fissure vein, Vein. (Additional cases are cited in U. S. Min. Stat., p. 44)

Lode claim. *See* Vein claim.

Lode country. *See* Ore channel.

Loded. Magnetized by a lodestone. (Standard)

Lode mining-claim. A mining claim including a lode, fissure, or fissure vein. In the United States the maximum length along the lode or vein is 1;500 feet and the maximum width is 600 feet.

A tract of land with defined surface boundaries, including all lodes, veins, and ledges throughout their entire depth, the top or apex of which lies inside of vertical planes extended downward through the surface boundary lines, although such veins in their downward course may extend outside of the vertical side planes of the surface location. (Paul *v.* Cragnaz, 25 Nevada, p. 327.) The extension of inclined veins beyond the side lines has resulted in much litigation. In Mexico a claim is 100 meters square, and is bounded by vertical planes through the surface lines. *See* Claim; Mining claim.

In some mining districts, as Bisbee, Arizona, the operating companies have entered into mutual contracts, specifically eliminating extralateral rights, and defining underground property rights by downward vertical planes through the surface boundaries.

Lode plot. A horizontal lode. (Skinner)

Lodestone. 1. Magnetic iron ore. *See* Loadstone. 2. Stone found in veins or lodes. (C. and M. M. P.)

Lode stoovan (Eng.). An open cutting toward a vein in rising ground. (Bainbridge)

Lodestuff. All the material contained in a vein or lode, including gangue and ore. (Standard)

Lodge. 1. (Eng.) A subterranean reservoir for the drainage of the mine made at the shaft bottom, in the interior of the workings, or at different levels in the shaft (Gresley). A sump.

2. (Scot.) A cabin, at the mine shaft, for workmen. (Barrowman)

3. (Wales) *See* Platt. 4. The room or flat at the shaft into which the pushers or trammers empty their loads. (Standard)

Lodge moraine. A kind of terminal moraine consisting of material pushed along by the glacier but falling short of its front. (Standard)

Lodgment (Scot.). *See* Sump, *also* Lodge.

Lodgment level (Scot.). A room driven from a level a short distance to the dip and used for storage of water (Barrowman). A sump.

Lodo (Sp.). Mud or slime. (Halse)

Loess. In geology, a yellowish, fine-grained, slightly calcareous, loamy clay, commonly unstratified but having some vertical jointing, believed to be a deposit of wind-blown dust (La Forge). The name is a German word, akin to "loose," and appears to have been first applied geologically in the Rhine valley. (Kemp)

Loess kindchen. A spheroidal or irregular nodule of calcium carbonate found in loess. (Standard)

Lofthead (No. Staff.). A cavity, in a mine roof, produced by a fall. (Gresley)

Lofting. 1. (So. Wales) An old or disused heading over the top of another one. 2. (No. of Eng.) *See* Lacing, 1. (Gresley)

3. (Scot.) Wood filling up vacant space on top of crowns or gears. (Barrowman)

4. Timbers, usually old, laid across the caps of steel frames or sets in a working to support the roof. (Webster)

Lofty tin (Corn.). Large and rough tin ore. (Davies)

Log. 1. (So. Staff.) A balance-weight near the end of the hoisting-rope of a shaft to prevent its running back over the pulley. (Raymond)
2. (No. Staff.) *See* Dolly, 2. 3. The record of an engine, boiler, or other trial, in which a series of observations have been taken (Webster). Also the record of a drillhole, as the log of an oil well.

Loggan stone (Eng.). A weather-worn block so finely balanced on its pivot-like base that a very ordinary force suffices to make it log, or rock from side to side. Properly Logging stone, and perhaps better known as Rocking-stone. (Page)

Logged up. Supported by trees, props, or puncheons. (Gresley)

Logging. The business of cutting and getting out logs or timber from a forest (Century). Often closely associated with mining for the purpose of obtaining mine timbers.

Logging stone. *See* Loggan stone.

Log washer. A slightly slanting trough in which revolves a thick shaft or log, carrying blades obliquely set to the axis. Ore is fed in at the lower end, water at the upper. The blades slowly convey the lumps of ore upward against the current while any adhering clay is gradually disintegrated and floated out the lower end. (Liddell)

Lohmannizing. A process by which a protective zinc coating is amalgamated to a base-metal sheet. (Liddell)

Loiseau furnace. A gas-fired furnace for the distillation of zinc ores. (Ingalls, p. 446)

Lokie (Penn.). A local term for locomotive.

Löllingite. Essentially iron diarsenide, $FeAs_2$, but passing into Fe_3As_4. Closely related to arsenopyrite or mispickel. (Dana)

Loma (Sp.). A long, comparatively narrow, somewhat flat-topped mountain ridge, or ridge of hills. (Standard)

Lombong (Malay). An open-pit mine in a valley.

Lomerío (Sp.). A series of *lomas*. (Dwight) *See* Loma.

Lomonite. Same as Laumontite. (Standard)

Lona (Mex.). Canvas. (Dwight)

London clay. A geological formation near London, England. It has a maximum thickness of about 500 feet. (Century)

London white. White lead. (Standard)

Long clay. Clay possessing a high degree of plasticity. (Century)

Longitude. 1. Distance east or west on the earth's surface, measured by the angle which the meridian through a place makes with some standard meridian as that of Greenwich or Paris. 2. In surveying, the distance between two lines drawn north and south through the extremities of a course; easting or westing. (Standard)

Longitudinal fault. *See* Fault.

Longmaid process. *See* Henderson process.

Long pay (So. Wales). A system of paying wages. (Gresley)

Long-pillar work. A system of working coal seams in three separate operations: (*a*) Large pillars are left. (*b*) A number of parallel headings are driven through the block; and (*c*) the ribs or narrow pillars are worked away in both directions. (C. and M. M. P.)

Long tom. An inclined trough in which gold-bearing earth or gravel is crudely washed. It is longer than a rocker. (Webster)

Long ton. A ton of 2,240 avoirdupois pounds. Equal to 1,016.06 kilograms. (Webster)

Longues tailles (Fr.). Same as Longwall.

Longwall. A system of working a seam of coal in which the whole seam is taken out and no pillars left, excepting the shaft pillars, and sometimes the main-road pillars. *Longwall advancing*, mining the coal outward from the shaft pillar and maintaining roadways through the worked-out portion of the mine. *Longwall retreating*, first driving haulage road and airways to the boundary of a tract of coal and then mining it in a single face without pillars back toward the shaft (Steel). Also known as Longwork, Shropshire method, Combination longwall and Nottingham or Barry system.

Longwall stope. *See* Flat-back stope.

Longwall stoping. *See* Overhand stoping.

Long weight. *See* Long ton.

Longwork. *See* Longwall.

Loob; Loobs (Corn.). The clayey or slimy portion washed out of tin ore in dressing. (Raymond)

Looking (No. Staff.). Examining the unwalled sides of a shaft. (Gresley)

Lool. A vessel to receive ore washings. (Standard)

Loop. 1. *See* Loup, 1 and D-Link. 2. A sling at the end of a hoisting rope.

Loop drag. An eye at the end of a rod through which tow is passed for cleaning boreholes. (Raymond)

Looping. The fusing of ore into a mass when the ore is only heated for calcination (Standard). *Compare* Loup, 1.

Loors (Corn.). Refuse sludge from washing tin ore. (Webster)

Loose (Eng.). 1. Applied to a working place to denote that it is open at both sides—that is, that the coal has been previously removed at both sides. "Loose at an end," or "loose at one side," denotes that the coal has been worked or mined at one side. 2. The end of a shift or of the day's work is spoken of as "Loosing time," or "Loose," or "Kenner;" and when the workmen leave, the pit is said to be "loosed out." (Redmayne)

Loose-end. 1. A gangway in longwall working, driven so that one side is solid ground while the other opens upon old workings. *See* Fast-end. (Raymond)
2. Coal prepared by cutting, or that coal which is certain to be loosened by a shot. (Steel)
3. The limit of a stall next to the goaf, or where the adjoining stall is in advance. (Gresley)

Loose needle. Same as Dial.

Loosening bar. An implement for loosening a pattern from a sand mold. (Standard)

Loose rails (Aust.). Rails that can be lifted and placed across a permanent line when desired to run skips across it. (Power)

Loosing (So. Staff.). Lowering a cage, etc., into a shaft or pit. (Gresley)

Lord (Corn.). Landlord; the owner of the soil or mineral, to whom rent or royalty is payable. (Davies)

Lordship. 1. (Scot.) A mineral property. (Barrowman)
2. (Scot.) Royalty or acreage rent. (Gresley)

Lord's mear (Eng.). The portion of ore that belongs to the owner of the land. (Hunt)

Lorry. 1. (York.) A movable bridge over a shaft top upon which the bucket is placed after it is brought up for emptying. (Gresley)
2. A car used on mine tramways, or at coke ovens. *See* Larry.
3. A long wagon having a low platform and four small wheels. (Standard)

Lorry track. In coke making, a car track laid, in block ovens, between the two parallel lines of ovens composing a block; and in bank-ovens just back of a single row of ovens composing the bank. (Century)

Losa. 1. (Sp.) A flat stone; a flagstone. 2. (Chile) A mass of rock about 20 feet thick formed of fragments of recent shells and pebbles firmly cemented together. (Halse)

Lose. 1. (Eng.) To work a seam of coal, etc., up to where it dies out or is faulted out of sight. This is called "losing the coal." 2. To be unable to work out a pillar on account of thrust, creep, gob fire, etc. 3. A pit shaft is said to be "lost" when it has run in or collapsed beyond recovery. (Gresley)

Losero. 1. (Sp.) A flagstone quarry.
2. (Mex.) At Guanajuato, sandstone quarries yielding a beautiful, colored stone for building purposes. (Halse)

Losing-iron. *See* Furnace losing-iron.

Lost level (Corn). A level or gallery driven with an unnecessarily great departure from the horizontal. (Raymond)

Lost river. In geology, a river that, by a secular increase in aridity, at first periodically in the driest season, and at last permanently, has lost its trunk, its remnental detached tributaries losing themselves in the arid ground. (Standard)

Lost-wax process. A process of executing bronze casting by casing a wax model with plaster and afterward melting out the wax. (Standard)

Lot (Eng.). The lord's (land owner) dues; a royalty. (Bainbridge)

Lough. 1. (Lanc.) An irregular cavity in an iron mine. (Gresley)
2. A lake in Ireland. (Century)

Loup. 1. The pasty mass of iron produced in a bloomery or puddling furnace. *See* Puddle-ball. (Raymond)
2. (Scot.) Slip or fault. (Barrowman)

Low. 1. (No. of Eng.) A candle or other naked light carried by a miner. Also spelled Lowe.
2. (Forest of Dean) *See* Horse, 1 and 2.
3. Not high in upward extent; having little vertical extension, as a low roof in a mine. 4. Lying below the natural or general level. as a low valley.

Low blast. A blast delivered to a smelting furnace at low pressure. (Standard)

Low coal. Coal occurring in a thin seam or bed. (Steel)

Low doors (Scot.). The lowest of two or more landings in a shaft. (Barrowman)

Lowe (Newc.). A light. A "piece of lowe" is part of a candle. (Raymond). *See also* Low, 1.

Lower leaf (Scot.). The lower portion of a seam of coal that is worked in two sections or leaves. (Barrowman)

Lowe rope (No. of Eng.). A piece of rope used as a torch. (Gresley)

Low explosives. A term sometimes used to designate explosives that do not detonate, as blasting powder, in distinction to high explosives, such as dynamite. (Du Pont)

Low-freezing dynamite. A dynamite so made that its freezing point is below that of such dynamites as contain only nitroglycerin and an active base and which have a normal freezing point of about 45° F. Low-freezing dynamites do not freeze until temperatures below 32° F. are reached, and even then only after prolonged exposure. (Du Pont)

Low-grade. 1. An arbitrary designation of dynamites of less strength than 40 per cent. It has no bearing on the quality of the materials, as they are of as great purity and high quality as the ingredients in a so-called high-grade explosive. (Du Pont)
2. A term applied to ores relatively poor in the metal for which they are mined; lean ore.

Low level; Laigh level (Scot.). The drift or working which is furthest to the dip. (Barrowman)

Low lift; Laigh lift (Scot.). The lowest set in a system of pumps. (Barrowman)

Low powders. Explosives containing a small proportion of nitroglycerin and a base similar to blasting powder. Intermediate between blasting powder and dynamite in action. (Du Pont). *See* Low-grade, 1.

Lowse (Scot.). To cease working. "The pit's lowsed," *i. e.*, work has ceased for the day (Barrowman). *Compare* Loose, 2.

Low steel. Steel low in carbon. and hence comparatively tough and soft, and usually not susceptible of hardening or tempering. (Standard)

Low-terrace drift (Aust.). Gravel and shingle in terraces. (Century)

Loxoclase. An orthoclase containing considerable sodium. (Webster)

Loza. 1. (Sp.) Pottery. 2. (Peru) Bedrock in alluvial mines. (Halse)

Lubricante (Mex.). Lubricant. (Dwight)

Lubricites. A word used by M. E. Wadsworth to include all mineral lubricants or antifriction materials. (Power)

Luce and Rozan process. A modification of the Pattinson process whereby the molten lead is stirred by the injection of steam. Used in desilverizing base bullion. (Hofman, p. 418)

Luciite. Chelius' name from the Luciberg in Hesse, for finely crystalline, diorite dikes, whose minerals are xenomorphic. (Kemp)

Luckhart furnace. A continuously working shaft furnace for roasting quicksilver ores, having the fireplace in the shaft at the bottom, protected by a cast-iron roof. The fuel is wood. (Raymond)

Luckite. A vitreous green variety of melanterite in which part of the iron is replaced by manganese, $(MnFe)SO_4.7H_2O$, that crystallizes in the monoclinic system. (Standard)

Lucullite. A variety of marble, colored black by carbon, and obtained from Egypt. (Webster)

Lue (Prov. Eng.). To sift: a miner's term. (Standard)

Lum. 1. A chimney over an upcast shaft to increase the draft. (Raymond)
2. (Derb.) A basin or natural swamp in a coal seam, often extending several hundred yards. (Gresley)
3. (Eng.) An area of softness in a coal seam. (Webster)
4. (Scot.) A fall of roof in which the breakage of the rock extends in a conical form to a considerable height. (Barrowman)
5. (Eng.) A hole at the foot of a shaft for collecting water (Bainbridge). Also spelled Lumb. A sump.

Lumachelle. A dark brown shelly marble, having brilliant fire or *chatoyant* reflections from within. Also called Fire marble. (Ure)

Lumb (Eng.). *See* Lum, 5.

Lumberings (Derb.). Bumps over old workings. (Gresley)

Lumbrera. 1. (Sp.) An air shaft; an adit shaft. (Min. Jour.)
2. (Mex.) A porthole in a furnace. (Dwight)

Lumhead (Scot.). A chimney top. *See* Lum, 1. (Century)

Lump coal. Coal in large lumps; the largest size brought from the mine (Webster). Also, the largest marketable size.

Lunar caustic. Silver nitrate cast into sticks for use by surgeons. (Century)

Luncart; Lunker (Scot.). A lenticular mass, nodule, or ball. (Barrowman)

Lungmotor. A trade name for a mechanical device for inducing respiration in cases of asphyxia, drowning, electric shock, etc. It consists of two parallel cylinders with pistons externally connected so that a stroke in one direction exhausts the lungs through one cylinder while the other cylinder fills with air, oxygen, or both, and a stroke in the opposite direction inflates the lungs with the air or oxygen and discharges the foul gases drawn from the lungs.

Lurmann front. An arrangement of water-cooled castings through which iron and cinder are tapped from the blast furnace, thus avoiding the use of a forehearth. *See also* Closed front. (Raymond)

Lurry. 1. (York.) A weighted tram to which an endless rope is attached, fixed at the inbye end of the plane, forming part of an appliance for taking up the slack rope. 2. A movable platform on wheels, the top of which is level with the bank or surface. It is run over the mouth of a shaft to receive the bucket when it reaches the top (Gresley). A variation of Lorry, 3.

Luster. 1. The character of the light reflected by minerals; it constitutes one of the means of distinguishing them. (Roy. Com.)

There are several kinds of luster, as follows: Metallic, the luster of metals; adamantine, the luster of diamonds; vitreous, the luster of broken glass; resinous, the luster of yellow resin, as that of eleolite; pearly, like pearl; silky, like silk. These lusters have different degrees of intensity, being either splendent, shining, glistening, or glimmering. When there is a total absence of luster, the mineral is characterized as being dull. (Dana)
2. In ceramics, a glaze, varnish, or enamel applied to porcelain in a thin layer, and giving it a smooth, glistening surface. (Standard)

Lustered ware. In ceramics, glazed ware painted with metallic pigments and fired a second time in a kiln so constructed that the gases come into contact with the surface, giving a prismatic effect. (Standard)

Luster ware. Pottery decorated with metallic colors. (Standard)

Luster wash. A metallic wash used upon pottery. (Standard)

Luster mottlings. A name applied by Pumpelly to certain augitic rocks, that have a shimmering luster because the shining cleavage faces of the augite crystals are mottled by small inclusions. (Kemp)

Lute. 1. Pasty matter as clay, used to close joints of chemical or metallurgical apparatus and to coat surfaces so as to protect them from the action of flame. (Skinner)
2. In bricklaying, a scraper having a cutting edge. 3. To smooth the surface of (a drying yard) before placing new bricks upon it to dry. (Standard)

Lutecium. A metallic element separated from Ytterbium in 1907. Symbol, Lu; atomic weight, 175.0.

Lutose. Covered with clay; miry. (Webster)

Luxullianite. A tourmaline granite from Luxullian, in Cornwall, that is a product of contact metamorphism. (Kemp)

Luz (Sp.). 1. Light; *L. discubierto*, a naked light used in coal mines; *L. de arco*, an arc light; *L. incandescente*, an incandescent light. 2. A section of a shaft or wall. 3. Span of a bridge or arch. (Halse)

Luzonite. A mineral closely related to enargite. found in the Island of Luzon. (Century)

Lyddite. A high explosive, chiefly picric acid, used as a shell explosive in the British service. (Webster)

Lydian-stone. 1. A compact or close-grained, nearly black, variety of jasper. A smoothed surface of this stone is used for trying the streak of gold, the color of which affords an index to its purity (Roy. Com.). 2. Touchstone. (Webster)

Lydite. *See* Basanite.

Lye (Scot.). A siding or turnout in a mine. (Gresley)

Lying side (Derb.). The lower side of a vein (Mander). That portion next to the footwall.

Lying time (Scot.). *See* Lie time.

Lying wall. Same as Footwall.

Lyncurium. A stone used for intaglios, not now identified with certainty, but supposed to be the modern hyacinth. Pliny used the name for amber, 77 A. D. (Chester)

Lynen furnace. A zinc-distillation furnace with a common condensation chamber. (Ingalls, p. 486)

Lynx stone. An early synonym for Pliny's lyncurium. (Chester)

Lyonnaise marble. A trade name for a chocolate red and white variety of dolomitic marble used mainly for wainscoting and tiling; from Malletts Bay, Lake Champlain. *See also* Winooski marble. (Merrill)

Lype (Scot.). An irregularity in the mine roof (Gresley). A projecting rock in a mine roof that may fall at any time. Usually used in the plural, and sometimes spelled Lipe.

Lyster process. A flotation process that separates galena and zinc blende by treatment, at a low temperature, with eucalyptus oil or other frothing agent, and with agitation or aeration in a neutral or alkaline, but not acid, solution of the sulphates, chlorides, or nitrates of calcium, magnesium, sodium, potassium, or mixtures of these substances. (T. J. Hoover, p. 180)

M.

Maar. A relatively flat-floored volcanic explosion crater at a vent that is either coneless or else provided with an inconspicuous cone. (Daly, p. 144)

MacArthur and Forest cyanide process. A process for recovering gold by leaching the pulped gold ore with a solution of 0.2 to 0.8 per cent of potassium cyanide, KCN, and then with water. The gold is obtained from this solution by precipitation on zinc or aluminum, or by electrolysis. (Goesel)

Maccaluba. A mud volcano. (Standard)

Maceo (Mex.). Stamping and crushing as distinguished from pulverizing. (Halse)

Macerate. To reduce to a pulp by long saturation in water, or by steeping. (Webster)

Macero (Mex.). A man in charge of stamping and crushing. (Halse)

MacFarlanite. A silver ore found in the mines of Silver Islet, Lake Superior. It contains arsenic, cobalt, nickel, etc., but is not a homogeneous mineral. (Century)

Machacado (Peru). Native silver in ore. (Dwight)

Machacadora (Sp.). A rockbreaker or crusher. (Halse)

Machacar (Sp.). To crush or break ore. (Dwight)

Machada (Sp. Am.). Hand-picking; spalling. (Lucas)

Machadero (Colom.). A shed or place where ore is spalled or cobbed. (Halse)

Machado (Sp.). A hatchet. (Halse)

Machaqueo (Sp.). Bucking or cobbing of ore. (Lucas)

Machar (Sp.). To break up the ore. (Lucas)

Machays (Ecuador and Peru). Caverns, of shallow depth and large openings, lined with sulphur. (Halse)

Machete (Sp.). A large knife heavy enough for chopping. (Dwight)

Machihembrar (Mex.). To dovetail or join with tenon or tongue and groove. (Dwight)

Machine. 1. (Eng.) A weighbridge or weighing machine upon which wagons, trams, carts, etc., are weighed, either with or without their load of coal. (Gresley)
2. (Queensland) An ore crusher. "Crushing machine" and "battery" are used synonymously with "mill" in other parts of Australia to designate the reduction plant as a whole. (Rickard)
3. Any drill or coal-cutting device, operated by air, steam, or electricity.

Machine drill. Any mechanically driven drill. *See* Rock drill.

Machine helper. A man employed to assist in the operation of a coal-cutting machine, and whose duty it is to look after the jack and assist in moving and adjusting the machine. (Robinson *v.* Virginia-Pocahontas Coal Co., 88 S. E. Rept., p. 623)

Machineman. 1. (Eng.) One who weighs coal, etc., and keeps an account of the number of cars sent to the surface. (Gresley)
2. One who operates a machine as a drill or coal-cutting machine.

Machine wall. The face at which a coal-cutting machine works. (Gresley)

Machine whim. A winding drum operated by a steam engine.

Machinist (Aust.). The man in charge of a coal-cutter. (Power)

Macho. 1. (Sp.) A male mule. 2. (Colom.) An unproductive mineral vein. 3. (Mex.) A wall plate. 4. A dike. 5. The block on which an anvil is mounted. (Halse)

Machonga (Colom.). A hard, bronze-colored iron pyrite. (Halse)

Machorro (Sp. Am.). An unproductive lode. (Lucas)

Machote (Mex.). A stake, or permanent bench mark, fixed in an underground working, from which the length and progress thereof is measured. (Dwight)

Machucador (Mex.). A crusher. (Dwight)

Machucadura (Sp.). Spalling or crushing. (Halse)

Macigno (Italy). A term applied to a siliceous sandstone, sometimes containing calcareous grains, mica, etc. (Comstock). From the Upper Eocene of the Italian Alps.

Macizo (Sp.). 1. An unworked lode. 2. A block of ground ready for stoping. 3. A pillar. (Halse)

Mackintoshite. A massive black silicate of uranium, thorium, cerium, etc. (Dana)

Macle. 1. A twin crystal., 2. Chiastolite. (Standard)

Macled. 1. Spotted or checkered, like chiastolite. 2. Twinned, as a crystal. (Standard)

Maclureite. 1. A deep-green to black pyroxene. 2. Same as Chondrodite. (Standard)

Macquisten tube process. A metallurgical process that makes use of surface tension for separating minerals, whereby some of them float and some sink. The apparatus consists of a long tube with helical grooves, which, upon rotation, screw the pulp through the tube. The tailings are removed from the bottom of a box at the upper end of the tube and the concentrates float off. (Megraw, p. 70)

Macroaxis. The *b*-axis (long) in orthorhombic and triclinic crystals.

Macrodiagonal. The longer lateral axis in the orthorhombic and triclinic systems. (Standard)

Macrodome. In crystallography, a dome parallel to the macrodiagonal. (Standard)

Macromeritic. Of or pertaining to a granitoid structure of rocks that is discernible by the naked eye; opposed to Micromeritic. (Standard)

Macropinacoid. In crystallography, a pinacoid parallel to the vertical and macrodiagonal axes. (Standard)

Macroprism. A prism whose intercept on the macrodiagonal is greater than unity. (Standard)

Macropyramid. A pyramid whose intercept on the macrodiagonal is greater than unity. (Standard)

Macroscopic. In petrology, recognizable by the unaided eye; said of characters of rocks. Now replaced by Megascopic (La Forge). It is etymologically less correct as an antithesis of microscopic than is megascopic, for *macro* is from the Greek for broad, whereas *mega* means large.

Macrostructure. A structural feature of rocks that can be discerned by the unassisted eye, or with the help of a simple magnifier. (Standard)

Made ground. A recent deposit, as of river silt. (Duryee)

Madera (Sp.). Wood; lumber. (Halse)

Madre (Sp.). 1. Bed of a river. 2. Mother liquor. 3. (Colom.) Smooth surface-rocks. An ironstone pebble; hematite. (Halse) 4. (Peru). A horizontal crossbeam in a mill. (Lucas)

Madrepore. A branching coral; also, any perforated stone coral. (Standard)

Madrepore marble. A fossiliferous limestone of Devonian age and of a variety of colors. It admits of a high polish and is used as a marble. Takes its name from the most characteristic fossil, a species of madrepore. (Merrill)

Madrier (Fr.). A flat, wooden beam used in a mine (military) to support earth. (Standard)

Madrina (So. Am.). The leader of a train of pack mules; usually a mare. (Standard)

Madupite. A vitrophyric igneous rock containing diopside, phlogopite, and perovskite in a leucitic glassy base (La Forge). The name was given by Whitman Cross to a peculiar group of rocks that are illustrated by one forming Pilot Knob, a mesa about 6 miles northeast of Rock Springs, Wyo. Cross defines Madupite "as consisting essentially of diopside and a magnesia-potash mica with leucite in decidedly subordinate amount. Its magma is low in silica, alumina, and iron, rich in potash, and contains so much lime and magnesia that silicates of these bases are the principal constituents, yet controlled in their development by the strong potash element." The Pilot Knob case is a vitrophyric representative of the type so defined. (Kemp)

Mad water (Corn.). Water that, through neglect, rushes back to the mine. (Davies)

Maenite. A name derived from Lake Maena, near Gran, Norway, and given by W. C. Brögger to an intrusive trachytic rock, regarded as a differentiation product of a gabbro-magma. Maenite is a bostonite relatively rich in lime and poor in potash. (Kemp)

Maestro (Sp.). 1. Master, master workman; *M. del bocarte*, a mill man; *M. de obras*, a contractor or builder; *M. fundidor*, a practical smelter, *M. herrero*, a master blacksmith; *M. mecánico*, a master mechanic; *M. palero*, head timberman. 2. (Peru) The principal trough in *patio* amalgamation, in which all the amalgam is gathered. (Dwight)

Mafic. In petrology, pertaining to or composed dominantly of the ferromagnesian rock-forming silicates; said of some igneous rocks and their constituent minerals. Contrasted with Felsic. (La Forge)

Maggie (Scot.). An inferior and sandy part of ironstone; inferior or stony coal. (Barrowman)

Maggie blaes (Scot.). An inferior sulphurous ironstone. (Barrowman)

Magistral (Sp.). A powder of roasted copper pyrites, used in the amalgamation of silver ores in the Mexican patio process. (Raymond)

Magistraleros (Mex.). Men who burn (roast) copper ore for *magistral*. (Halse)

Magma. In petrology, liquid molten rock; the molten material from which igneous rocks are formed by solidification (La Forge). An original, parent magma may break up into several derived ones. The word is also used in the sense of *basis* as earlier defined, but this use is unfortunate. (Kemp)

Magma-basalt. A synonym for Limburgite, proposed by Boricky in 1872, at about the same time that Rosenbusch suggested limburgite. Some authorities give the former the preference. (Kemp)

Magmatic. In petrology, of, pertaining to, or derived from magma. (La Forge)

Magmatic differentiation. In petrology, the process by which different types of igneous rocks are derived from a single parent magma, or by which different parts of a single molten mass assume different compositions and textures as it solidifies (La Forge). Also called Magmatic segregation.

Magmatic water. Water derived from cooling igneous magma. *See also* Juveline water. (Emmons)

Magnesia. Magnesium oxide, MgO. A light, earthy, white substance, obtained by heating the hydroxide or carbonate, or by burning magnesium. (Webster)

Magnesia alba. A light, white, hydrous magnesium carbonate prepared by pulverizing the mineral magnesite, or by chemical means. (Standard)

Magnesian limestone. *See* Dolomite.

Magnesite. Magnesium carbonate, $MgCO_3$. Crystals rare, usually rhombohedral, also prismatic. Commonly massive; granular, cleavable to very compact; earthy. Color white, yellowish, or grayish-white, brown. Transparent to opaque. (Standard)

Magnesium. A silver-white metallic element, malleable, ductile and light. Symbol, Mg; atomic weight, 24.32; specific gravity, 1.74 (Webster). Used chiefly in the form of ribbon or powder to produce a brilliant light by its combustion, as in signaling, photography, or pyrotechny. (Standard)

Magnes stone. A magnet. (Century)

Magnet. 1. A loadstone; a variety of magnetite or magnetic iron ore having naturally the property of attracting iron (Webster). Also called Natural magnet.
2. A large horseshoe magnet employed to lock and unlock safety lamps. The operation can be accomplished only by direct contact with the magnet.

Magnetic. Of, or pertaining to, the magnet; possessing the properties of the magnet, as a magnetic needle. (Webster)

Magnetic field. 1. The space through which the force or influence of a magnet is exerted. 2. The space about a conductor carrying an electric current in which, as it may be shown, magnetic force is also exerted. (Century)

Magnetic force. The force, attractive or repulsive, exerted between two magnetic poles; the force which produces or changes magnetization. (Webster)

Magnetic guard. A double mask of magnetized steel-wire gauze, to protect a workman from the flying dust of iron and steel. (Standard)

Magnetic iron ore. Synonym for Magnetite.

Magnetic meridian. In general, any isogonic line. Specifically, the direction assumed by the compass needle at any place; a magnetic north-and-south line.

Magnetic ore. A black, hard ore that is magnetic, as magnetite. (Standard)

Magnetic pole. Either of those points on the earth's surface where the lines of magnetic force are vertical; an end of the axis of the earth's magnetic polarity, not coinciding with a geographical pole, and changing its position slowly. The north magnetic pole is in northern British America at about lat. 70½° N., long. 97° W. (Standard)

Magnetic pyrite. Same as Pyrrhotite. (Standard)

Magnetic scale. A diagram of metals showing their comparative magnetic qualities. (Standard)

Magnetic separator. A device in which a powerful magnet separates magnetic iron ore from sand or gangue. (Standard)

Magnetism. That peculiar property possessed by certain bodies (as iron and steel) whereby, under certain circumstances, they naturally attract or repel one another according to determinate laws. (Century)

Magnetite; Magnetic iron ore. The magnetic iron oxide, $FeO.Fe_2O_3$. Contains 72.4 per cent iron (U. S. Geol. Surv.). The name of the mineral is prefixed to the names of many rocks in which it is prominent. It almost furnishes a rock itself, in places. (Kemp)

Magnetite-olivinite. A name coined by A. Sjogren in 1876 for the igneous iron ore at Taberg, in Sweden. The rock is an aggregate of magnetite and olivine, with a few shreds of biotite. The rock is practically a peridotite, greatly enriched with titaniferous magnetite. On the borders of the intrusion it shades into gabbro. *Compare* Cumberlandite. (Kemp)

Magnetite-spinellite. An eruptive iron ore occurring at Routivara, Sweden, and consisting of magnetite (in part titaniferous), spinel, and smaller amounts of olivine, pyroxene, apatite, and pyrrhotite. The ore contains about 14 per cent titanic oxide. (Kemp)

Magnochromite. A variety of the mineral chromite that contains magnesium. (Standard)

Magnophyric. Coarsely porphyritic. Containing phenocrysts that are greater than 5 mm. in longest diameter. *See* Mediophyric and Minophyric. (Iddings, Igneous Rocks, p. 200)

Maiden field (Scot.). An unbroken or unworked mineral property. (Barrowman)

Maidens (Scot.). Iron frames or standards carrying pillow blocks of shaft pulleys (Barrowman). *See* Mingles.

Main-and-tail-rope haulage. A system of haulage whereby a set of skips connect two ropes, one known as the main, the other as the tail rope. The main rope hauls the full skip out, while the tail rope draws the empties into the mine. (Power)

Main bord-gate (York.). The heading which is driven slightly to the rise from the shaft. (Gresley)

Main bottom. Hard rock below alluvial deposits. (Duryee)

Main engine (No. of Eng.). The surface pumping engine, usually of the Cornish type. (Gresley)

Main entry. 1. An entry driven at right angles with the face slips of the coal (Roy). *See also* Entry. 2. A main haulage road. *See also* main road.

Main rake (Derb.). The main or principal vein. (Mander)

Main road. The principal underground road in a district along which the coal or ore is conveyed to the shafts, generally forming the main intake air course of each district. (Gresley)

Main rod (Corn.). *Sce* Pump rod.

Main rope. In tail-rope haulage, the rope that draws the loaded cars out of the mine. (Steel)

Main-rope system. A system of underground haulage in which the weight of the empty cars is sufficient to draw the rope inbye. (Gresley)

Main suit (Brist.). A heavy spring or feeder of water. (Gresley)

Maintainer (Eng.). A shareholder. (Bainbridge)

Maintenage (Fr.). The face of workings in inclined or vertical seams, consisting of a series of steps each about 6 feet high, and forming the working place for one man. (Gresley)

Mainway. A gangway or principal passage. (Raymond)

Maja; Majadero (Sp.). A pestle. (Halse)

Majano (Sp.). A small heap of stones used as a landmark. (Halse)

Majar (Sp.). To pound or beat in a mortar. (Halse)

Majolica; Maiolica. A variety of earthenware coated with an opaque white enamel and decorated in colors. (Standard)

Make. 1. A formation or accumulation of profitable vein material; as, a make (*i. e.*, a body) of ore in a vein or in a series of lenticular deposits (Webster). Also called: Make of stone; Make of quartz; Make of reef.
2. The amount produced; yield; as, the make from a furnace. (Standard)

Make gas (Mid.). To yield or produce gas. A seam of coal that gives off fire damp is said to make gas. (Gresley)

Make of quartz. *See* Make, 1.

Make of reef. *See* Make, 1.

Make of stone (Aust.). A shoot of ore (Power). *See* Make, 1.

Makings (Newc.). The small coal hewn out in undercutting or channeling (Raymond). Also, in some localities, called Bug dust.

Mala (Peru). A gorge. (Halse)

Malacacheta (Braz.). A yellowish brown micaceous earth in which topaz is found. (Halse)

Malacate (Mex.). Windlass; horsewhim. Any mining hoist; *M. de arana*, an ordinary capstan. (Dwight)

Malacatero (Sp.). A whim driver. (Halse)

Malachite. Green basic copper carbonate, $2CuO.CO_2.H_2O$.. Contains 40.3 per cent copper. (U. S. Geol. Surv.)

Malachite green. 1. Malachite ground and used as a pigment. 2. A green, basic dyestuff of bluish tinge, prepared by condensation of benzaldehyde with two molecules of dimethylaniline, with subsequent oxidation. (Webster)

Malacolite. A pale-colored, translucent variety of diopside. (Dana)

Malacon. A brown, vitreous variety of zircon. (Standard)

Malaquita (Sp.). 1. Malachite. 2. *M. azul*, azurite. (Halse)

Malaspina glacier. *See* Piedmont glacier.

Malchite. A variety of diorite dike that has, in a groundmass of quartz, feldspar, and hornblende, phenocrysts of plagioclase, hornblende, and biotite. The name was given by A. Osann, and is derived from Malchen, another name for Mt. Melibocus, in Hesse. (Kemp)

Maldonite. A metallic, pinkish, silver-white alloy of gold and bismuth (Au_2Bi) that is found native. (Standard)

Malecón (Sp.). 1. A dike or embankment. 2. An ore wharf. 3. A cofferdam. (Halse)

Malétra furnace. A hand reverberatory furnace for roasting finely divided ore entirely without the aid of extraneous heat. (Peters, p. 172)

Malignite. A name proposed by Lawson for a group of rocks on the Maligne River, Rainy Lake district, Province of Ontario. They are described as "basic, holocrystalline, plutonic rocks, rich in alkalies and lime." Iron is present in moderate amounts, almost entirely combined in the silicates. Iron and magnesia are more abundant than is usual in the alkali-rich plutonic rocks. The chief minerals are orthoclase, often microscopically intergrown with an acid plagioclase; aegirite-augite, which may predominate with but a moderate admixture of biotite, or may be subordinate and intergrown with preponderant soda amphibole, biotite being present as before. There are two types of malignites, one of which has much melanite and another much nephalite. (Kemp)

Malinger. 1. To feign illness; sham sickness in order to avoid duty; counterfeit disease. (Century)

Malingerer. 1. A soldier or a sailor who feigns himself sick, or who induces or protracts an illness, in order to avoid doing his duty; hence, in general, one who shirks his duty by pretending illness or inability. (Webster)

2. In industrial-accident insurance, one who feigns disability or prolongs his period of disability, in order to collect accident insurance or compensation.

Malingering. A practice indulged in by an employee, injured by accident, in order that he may collect accident insurance or other compensation, and at the same time avoid work.

Malinowskite. A variety of tetrahedrite that contains lead. (Standard)

Malla (Sp.). Mesh of a screen. (Dwight)

Malleable. Capable of being extended or shaped by beating with a hammer, as gold, silver, etc. *Compare* Brittle, Flexible, and Sectile. (Webster)

Malleable castings. Small iron castings made malleable by annealing, or decarburizing by cementation in powdered hematite or other oxide of iron. (Raymond)

Malleable iron. Cast-iron made from pig-iron of the proper kind, so treated as to render it capable of being bent or hammered to a limited extent without breaking, that is, it is malleable. Its strength is above that of cast-iron. The treatment is known as annealing. (Nat. Tube Co.)

Malleate. To shape into a plate or leaf by beating, or hammering; said of metal. (Standard)

Mallet (Corn.). The sledge hammer used for striking a drill. (Raymond)

Mallon; Mallion (Eng.). A soft kevil (Bainbridge). *See* Kevil, 1.

Malm. 1. (Eng.) A soft, grayish-white, friable limestone. 2. A rich clayey soil containing chalk; marl; also in brickmaking an artificial mixture of clay and chalk. (Webster)

Malming. The preparation of an artificial malm by mixing chalk and clay reduced to a pulp, and allowing the mixture to consolidate by evaporation. (Century)

Malm rock (Eng.). A local name for the sandstone of Surrey and Sussex; called also firestone. (Ure)

Malmstone. Same as Malm rock.

Malpais (Mex.). Ground covered with a lava flow (Halse). Literally, bad land.

Maltha. The pitch or gum resulting from the drying up and oxidation of petroleum, as when it has reached the surface of the ground. (Roy. Com.)

Malthacite. A variety of fuller's earth. (Chester)

Malting coal (Wales). Anthracite coal. (Webster)

Mama (Sp. Am.). Stake or pile driver. (Lucas)

Mammillary; Mammilated. In mineralogy, forming smoothly rounded masses resembling breasts or portions of spheres: said of the shape of some mineral aggregates, as malachite or limonite: similar to but on a larger scale than botryoidal. (La Forge)

Mammona (Braz.). Castor oil used in a miner's lamp. (Bensussan)

Mampostería (Sp.). 1. Masonry work in general. 2. Rubble work or rough-stone work. (Halse)

Mampostero (Sp.). A stone mason. (Halse)

Mampuesto. 1. (Sp.) Ashlar, rubble, rough stone, or material used in walling. 2. (Colom.) A trestle aqueduct for flumes. (Halse)

Manager. An official who has control and supervision of a mine, both under and above ground, and generally also of the sale of the product (Steel). At some mines he is called superintendent, general superintendent, or agent.

Manantial (Sp.). A spring of water; *M. caliente*, a hot spring. (Halse)

Man cage. A special cage for raising and lowering men in a mine shaft. *See also* Man car.

Man car. A kind of car for transporting miners up and down the steeply inclined shafts of some mines as at Lake Superior (Century). *See also* Man cage.

Manchado (Sp.). Spotted ore. (Halse)

Mandadero (Mex.). Errand boy; a daily messenger. (Halse)

Mandarin porcelain. A Chinese porcelain brilliantly decorated with figures of mandarins in their official robes. (Standard)

Mandelstone. Same as Amygdaloid.

Mandón (Mex.). An overseer or boss. (Dwight)

Man door (Scot.). A small trapdoor on a traveling road. (Barrowman)

Mandrel; Mandril (Eng.). A miner's pick (Webster). *See also* Maundril.

Mandrel socket. A well tool for straightening out the top of casing, etc., within a well, consisting of a lemon-shaped swage within a cone or bellmouth, by means of which the casing is worked to a circular shape. Also useful for straightening a lost sand pump, etc., so that the dogs may enter. (Nat. Tube Co.)

Manebach twin. A monoclinic twin crystal having the basal pinacoid as the twinning plane. (Dana)

Man engine. *See* Man machine.

Manero (Mex.). A single-hand hammer used by miners. (Dwight)

Manga. 1. (Mex.) Conical canvas bag to drain quicksilver out of amalgam. 2. Hose. 3. Tuyère sack. (Dwight)
4. (Sp.) An inclined chute. An ore pass. 5. (Colom.) A pasture or meadowland. (Halse)

Manganapatite. A variety of apatite in which manganese replaces calcium. (Standard)

Manganblende. *See* Alabandite.

Manganbrucite. A yellow, massive variety of brucite containing manganese. (Standard)

Manganese. A hard, brittle metallic element having a grayish-white color tinged with red and rusting like iron. Not magnetic. Symbol, Mn; atomic weight, 54.93; specific gravity, 8.0. (Webster). The black oxid, pyrolusite, the gray oxide, manganite, and the earthy oxide, wad, are used in the arts. Manganese is used extensively in hardening steel. *See* Ferromanganese; *also* Manganese steel.

Manganese bronze. Properly, bronze containing manganese, a common proportion being copper 88, tin 10, manganese 2; also, any of certain other copper-manganese alloys not, necessarily containing tin. In general, it is a reddish-white metal, remarkable for its strength and toughness. (Webster)

Manganese copper. See Manganese bronze.

Manganese glaze. A dark-colored glaze which receives its color from an oxide of manganese. (Standard)

Manganese hydrate. *See* Psilomelane.

Manganese spar. *See* Rhodonite.

Manganese steel. Steel containing about twelve per cent of manganese. A non-fissile alloy that exceeds all other known materials in its combination of hardness and ductility: used chiefly where resistance to abrasion is required, as in crushing and dredging machinery, and in some car wheels. (Standard)

Manganeso (Sp.). Manganese, manganese ore; *M. negro*, pyrolusite; *M. gris*, manganite. (Halse)

Manganin. An alloy in which manganese and nickel are compounded in somewhat small proportions with copper, the ratio of manganese to nickel being as 3 or 4 to 1. This alloy is used almost exclusively in the construction of a standard of electrical resistance, the temperature coefficient being practically zero. (Standard)

Manganite; Gray manganese ore. A hydrated manganese oxide, $Mn_2O_3.H_2O$. (U. S. Geol. Surv.)

Manganocalcite. A variety of calcite that contains manganese carbonate and is closely related to rhodochrosite. (Standard)

Manganolite. Wadsworth's name for rocks composed of manganese minerals, such as wad, psilomelane, etc. (Kemp)

Manganosiderite. A carbonate of manganese and iron intermediate between rhodochrosite and siderite. (Century)

Manganosite. Manganese protoxide, MnO. In isometric octahedrons. Cleavage cubic. Color emerald-green, becoming black on exposure. (Dana)

Mangar (Colom.). To scrape the ground sluice with a hoe in order to collect the gold. (Halse)

Mango (Mex.). A handle for pick or hammer. (Dwight)

Manguera (Sp.). Hose. (Dwight)

Manguito (Sp.). A small sleeve; a clutch; a shaft coupling. (Halse)

Manheim gold. A brass alloy resembling gold. (Century)

Manhes process. A purifying and oxidizing process for removing sulphur from copper matte, by subjecting the molten matte to a blast of air; named from the inventor (Standard). *Compare* Bessemer process.

Manhole. 1. A refuge hole constructed in the side of a gangway, tunnel or slope. 2. A small and generally very short passage used only for the ingress and egress of the miners. 3. A hole in cylindrical boilers through which a man can get into the boiler to examine and repair it. (Steel) 4. A small passage connecting a level with a stope, or with the level next above. (Webster)

Man hudge (Glouc.). A kind of barrel or box in which men ride in a shaft. (Gresley)

Maní (Colom.). 1. Large fragments of amphibolite, syenite or granite in alluvial mines. 2. In lode mines, a granitic country rock. Sometimes applied to porphyry. (Halse)

Manifesto (Sp.). A freight list; a mainfest. (Halse)

Manipulator. A machine for moving and turning over hot billets or blooms of iron or steel in the process of rolling. (Standard)

Manizal (Sp. Am.). A place abounding in *maní*. (Lucas)

Manjak. A natural bitumen found in the Barbados. The term is sometimes used to include gilsonite and its congeners and ozocerite (Mitzakis). Used in the manufacture of varnish. Spelled also Manjack.

Man machine; Man engine (Corn. and Derb.). A mechanical lift for lowering and raising miners in a shaft by means of a reciprocating vertical rod of heavy timber with platforms at intervals, or of two such rods, moving in opposite directions. In the former case, stationary platforms are placed in the shaft, so that the miner in descending, for instance, can step from the moving platform at the end of the down-stroke, and step back upon the next platform below at the beginning of the next down-stroke. When two rods are employed, the miner steps from the platform on one rod to that on the other. (Raymond)

Mano (Mex.). 1. The grinding stone of an arrastre, etc. 2. A pestle. 3. *M. de hierro*, the muller of an amalgamating pan. 4. A stamp head. (Halse)

Man-of-war (Staff.). A small pillar of coal left in a critical spot; also, a principal support in thick coal workings. (Raymond)

Manometer. An instrument for measuring the elastic pressure of gases; an accurate pressure gage. (Standard)

Manoscope. A manometer. (Century)

Man rope. A winding rope used exclusively for lowering and raising men and animals, when tacklers and swinging bonts were used and cages were unknown. (Gresley)

Manta (Sp.). 1. A woolen blanket. 2. A blanket or horse cloth used for hoisting ore by the *malacate*. 3. A bedded vein or deposit. 4. (Nicaragua) A surface deposit of broken quartz worked for gold. (Halse)

Mantear (Mex.). To hoist ore in bags or *mantas*. (Halse)

Manteo (Mex.). 1. Hoisting. 2. An inclined hoist. (Dwight)

Mantero (Mex.). Man who loads material to be hoisted in a shaft. (Dwight)

Mantle. 1. The outer wall and casing of an iron blast furnace, above the hearth. (Raymond)
2. A penstock for a water wheel.

Manto (Sp.). In mining, a layer or stratum, especially a stratum that contains gold in profitable quantity. (Standard)

Manus tester. An instrument for determining the flash point of petroleum. (Mitzakis)

Manway. 1. A small passage used as a traveling way for the miner, and also often used as an airway or chute, or both. (Steel)
2. A short heading between two chutes (Gresley). A manhole.

Map. A horizontal projection, of surface plants, mine workings or both drawn to a definte scale, upon which is shown all the important features of the mine; a plan; a plat.

Maquila (Mex.). Smelting or treatment charge; *M. y flete*, freight and treatment charge. (Dwight)

Maquilar (Mex.). To work ore for its owner on shares, or for money. (Dwight)

Maquilero. 1. (Peru) Ore buyer. (Dwight)
2. (Mex.) One who dresses ore on hire. (Halse)

Maquilla (Sp.). A mill where ore is ground on shares. (Raymond)

Máquina (Sp.). A machine or engine. *M. de barrenar*, a rock drill (Lucas). *M. de vapor*, a steam engine (Min. Jour.). *M. de extracción*, a hoisting engine; *M. exploradora*, diamond-drill machine. (Halse)

Maquipuros (Peru). A class of workmen who make only temporary visits to the mines when they are attracted by bonanzas. Most of them come from distant Provinces and return to their homes when the bonanza is exhausted (Halse). A stampeder.

Marathon mill. A form of tube mill used in the cement industry, in which the pulverizing is done by long pieces of hardened steel shafting. (Liddell)

Maray (Arg.). A kind of hand arrastre used by the Indians for reducing quartz. (Lucas)

Marble. In lithology, a metamorphosed and recrystallized limestone. In the trade, the name is applied to any limestone that will take a polish. (Kemp)

The following are some of the principal marbles: Bardiglio, bird's eye, black and gold, boagard, breccia, brocatelle, calico, campan, cannes, carrara, cipolino, eolian, fior di persicor, fire, forest, formosa, giallo antico, griotte, landscape, languedoc, lepanto, lumachelle, lyonnaise, madrepore, mischio, nero antico de prato, numidian, onyx, paonazza, parian, parmazo, pavonazetta, pentellic, petit granite, phrygian, porter, ricolite, rosso antico, rosso levanto, rouge antique, ruin. saccharoidal, St. Anne, St. Baume, sarrancolin, serpentine, sienna, stalactitic and stalagmitic, statuary, verdantique, and winooski. (Ries)

Marble band (Scot.). Musselband ironstone. (Barrowman)

Marble glaze. A glaze coating on pottery, having colored veins in imitation of marble. (Standard)

Marble handsaw. A toothless blade fitted at the back with a block handle, used with sand for cutting slabs of marble into pieces. (Century)

Marble polisher. 1. A block of sandstone used to rub a marble slab in the preliminary polishing. Also a linen cushion with which the polishing is completed by the agency of emery dust, etc. 2. A machine for polishing marble. 3. A marble rubber. (Century)

Marbler. A quarrier or cutter of marble. (Century)

Marble rubber. A rubber for surfacing, smoothing, and polishing marble slabs. (Century)

Marble saw. A machine for cutting marble. (Century)

Marca (Sp.). 1. A mark. The royal arms, stamped on a piece of assayed silver as a token of its having paid the duties to the crown. (Rockwell) 2. A surveyor's mark. 3. A Province or district. (Halse)

Marcasita (Sp.) Marcasite. (Dwight)

Marcasite. The orthorhombic iron pyrite, FeS_2. It has a slightly lower specific gravity than pyrite and somewhat paler in color. Often called White iron pyrites; Coxcomb pyrites, and Spear pyrites. (Century)

March (Scot.). The boundary of the coal or colliery. (Gresley)

Marching (Scot.). A boundary working. (Gresley)

March place (Scot.). A heading driven up to or alongside the march, or boundary of a mining property. (Gresley)

March stones (Scot.). Stones set at intervals on the surface to indicate the boundary line. (Barrowman)

Marco (Mex.). 1. Set of shaft timbers; square set. Timber frame of any kind. 2. A weight of 8.1184 oz. avoir., or 7.3995 oz. troy. 3. (Chile) A pulley frame. (Halse)

Marcus. A patented shaker screen with a non-harmonic or quick-return motion. (C. and M. M. P.)

Marcy mill. A ball mill in which a vertical diaphragm is placed about 1 foot from the discharge end. Between this perforated diaphragm and the end of the tube there are arranged screens for sizing the material, oversize being returned for further grinding while undersize is discharged. (Liddell)

Marekanite. A rhyolitic perlite from the banks of the Marekaka river, near Okhotsk, Siberia. At times a clear glass; it is found in balls and cores of large perlitic masses and may even be under strain like Prince Rupert's drops. (Kemp)

Marga. 1. (Sp.) Marl. 2. (Colom.) Spathic iron; siderite. (Halse)

Margarite. 1. A primary form of crystallization in which globulites are arranged lineally. (Webster) 2. A monoclinic mineral, $H_2CaAl_4Si_2O_{12}$. Luster of base is pearly, and that of the lateral faces is vitreous. Color grayish, reddish-white, pink, yellowish. Translucent to subtranslucent. (Dana)

Margarodite. A variety of Muscovite, or common potash mica, affording upon ignition, a small percentage of water. (Century)

Margaryize. The impregnation of timber with a solution of copper sulphate. (Century)

Margin draft. In masonry, the plain-dressed portion of the face of a hewn block next its edge. (Standard)

Maria glass. An early name for both mica and selenite. (Chester)

Marialite. A variety of scapolite. (Century)

Marignac's salt. Potassium stannosulphate, $K_2Sn(SO_4)_2$. (Liddell)

Marine metal. A sheathing material for ships, usually an alloy principally of copper. (Standard)

Mariposa (Sp.). A naked light. (Lucas)

Mariposite. A light-green variety of muscovite that is found with pyrite. (Standard)

Mariupolite. A name derived from Mariupol, a locality on the sea of Azov, and applied by J. Morozewicz to a variety of nephelite-syenite, so rich in soda and poor in potash that orthoclase practically fails. An estimate of the percentage of the component minerals gave, albite, 73; nephelite, 14; aegirite, 7.6; lepidomelane, 4; zircon, 1.6. The texture varies from coarsely crystalline to porphyritic and to compact, according to the occurrence of the rock in large masses or in dikes. (Kemp)

Mark. 1. A band of hemp, etc., wrapped around a winding rope to indicate to the engineer the position of the cage in the shaft. (Gresley) 2. The chalk mark made at the working faces, etc., by a fireboss as an indication that he has made an examination of that place.

Market house (Eng.). A point near the mine entrance to which loaded mine cars are taken for examination when it is suspected that the miner has loaded more than the allowable amount of rock with the coal.

Market lead. Lead ready for market. (Standard)

Market pot. In silver refining, the pot at the end of the series of pots used in the Pattinson process, in the direction in which the amount of silver left in the lead is diminishing. It contains the market lead. (Century)

Markings (of mining claims). These may consist of stakes, posts, piles of stone, bowlders, posting a notice on the ground, placing a notice in a tin can attached to a stake, fastening a notice to a tree, or placing it in a box or frame, blazing trees along the boundaries or at the corners, cutting away undergrowth, making a trail through the timber along the sides or ends of the claim, or blazing stumps. (Meydenbauer *v.* Stevens. 73 Fed. Rept., p. 791)

Marl. A calcareous clay, or intimate mixture of clay and particles of calcite or dolomite, usually fragments of shells. Marl in America is chiefly applied to incoherent sands, but abroad compact, impure limestones are also called marls. (Kemp)

Marlaceous. Resembling, having the nature of, or containing marl. (Standard)

Marl brick. A fine quality of brick used in the fronts of houses; a cutter. (Standard)

Marlinespike. A sharp pointed and gradually tapered round iron, used in splicing ropes. (C. and M. M. P.)

Marlite. Marl that has become somewhat stony in character. (White)

Marl pit. A pit where marl is dug. (Webster)

Marl slate. Calcareous shale; a variety of marl splitting into thin plates. (Century)

Marlstone. A ferruginous limestone belonging to the middle Lias of England. (Webster)

Marly. Resembling marl; abounding with marl. (Webster)

Marmaja (Mex.). 1. Iron pyrite. 2. In the *patio* process a pyritic residue obtained in separating the silver amalgam by washing. 3. (Colom.). Marcasite and pyrite frequently rich in gold and silver (Halse). *Marmajas* (Mex.). Concentrated sulphides. (Dwight)

Marmarosis. The general name for the process of crystallization of limestones to marble, whether by contact or regional metamorphism. It was coined by Geikie from the Latin for marble. (Kemp)

Marmatite. A ferriferous variety of sphalerite, containing 10 per cent or more of iron. It is dark brown to black. (Dana)

Mármol (Sp.). Marble. (Dwight)

Marmolite. A thin laminated serpentine, usually pale green. (Webster)

Marmoratum. A cement formed of pounded marble and lime mortar well beaten together. Used by the ancient Romans in building terrace walls, etc. (Century)

Marmoric. Of or pertaining to marble. (Webster)

Maroma (Sp.). A rope to pull or draw by, as a hawser. (Min. Jour.)

Marquesitas (Sp.). Mundic; iron pyrite. (Min. Jour.)

Marqueta. 1. (Mex.) A bar of lead bullion. 2. (Peru) Retort silver. 3. A brick of amalgam. (Halse)

Marriner process. A modification of the cyanide process in which the ore is dead-roasted, all of it ground to slime, and the resulting product treated by agitation. (Liddell)

Marro (Mex.). A sledge hammer. (Dwight)

Marrow (No. of Eng.). A mate, butty, or partner. (Gresley)

Marsaut lamp. A type of safety lamp characterized by multiple-gauze chimneys. (C. and M. M. P.)

Mars brown. A yellowish-brown pigment the color of which is due to iron oxide. (Webster)

Marsh. A tract of soft wet land, commonly partly or wholly covered with water; a fen; swamp; morass. (Webster)

Marsh gas. Methane. In the miner's language, synonymous with fire damp.

Marsh ore. A synonym for Bog iron ore. (Chester)

Marsh test. A delicate test for arsenic. (Webster)

Martar el circo (Peru). To add the last mercury in the patio process. (Halse)

Marsut. *See* Mazout.

Martensite. A hard brittle substance, of the nature of a solid solution, consisting of iron with 2 per cent or less of carbon, and forming the chief constituent of quenched steel. The variety that corresponds in composition to pearlite (containing 0.9 per cent carbon) is called Hardenite. (Webster)

Martillo (Sp.). A hammer or sledge used in mining or quarrying. (Halse)

Martin. A stone-faced, perforated plate or runner, used for grinding and polishing stone. (Standard)

Martin process. Called also the Siemens-Martin and the open-hearth process. Used in the manufacture of steel. (Raymond)

Martite. Ferric oxide, Fe_2O_3, occurring in iron-black crystals of isometric form, and probably a pseudomorph after magnetite. (Webster)

Marver. A polished slab or table, originally marble, but now usually iron, with rounded concavities, upon which a balloon of molten glass gathered on the end of a blowpipe is rolled to make it cylindrical or spheroidal. (Standard)

Masa (Sp.). 1. Mortar. 2. A mass of gold, silver, or other metal. 3. An irregular deposit. (Halse)
4. *M. derecha*, vertical ore deposit; *M. echada*, horizontal ore deposit. (Dwight)
5. (Peru) Pulp discharged from a Chilean mill. (Pfordte)

Mascagnite. A native ammonium sulphate, $(NH_4)_2SO_4$, that occurs about volcanoes (Dana). Also called Mascagnine.

Mash (Scot.). A double-hand hammer for breaking coal, setting up props, etc. (Barrowman)

Mason. A mechanic whose occupation is the laying of brick and stone in building; one who has charge of or contracts for mason work; also, sometimes, one who works or dresses stone for building; a stonecutter. (Standard)

Masonry. 1. The art or work of constructing, as buildings, walls, etc., with regularly arranged stones or bricks; the occupation or skill of a mason. 2. That which is built by masons; stonework; brickwork.

Mason's hammer. A square-faced hammer with a peen in line with handle. (Standard)

Masonwork. *See* Masonry, 2.

Mass action. Chemical action as affected by the masses of the reacting substances. (Webster)

Mass copper (Lake Sup.). Native copper, occurring in large masses. (Raymond)

Massicot. Lead monoxide, PbO, occurring as a mineral. Contains 92.8 per cent lead (U. S. Geol. Surv.). *See* Litharge.

Massif. 1. The dominant, central mass of a mountain ridge more or less defined by longitudinal or transverse valleys. 2. A diastrophic block, or any isolated central independent mass. (Standard)

Massifs longs. (Fr.) Pillars in longwall workings. (Gresley)

Massive. 1. In petrology, (*a*) of homogeneous structure, without stratification, flow-banding, foliation, schistocity, and the like; said of the structure of some rocks: often, but incorrectly used as synonymous with igneous and eruptive. (*b*) Occurring in thick beds, free from minor joints and lamination: said of some stratified rocks. 2. In mineralogy, without definite crystalline structure; amorphous: not a very good usage. (La Forge)

Massive eruption. The pouring forth of lava from a line or system of fissures, so that vast areas have become covered by nearly horizontal sheets of eruptive material. (Century)

Mast. The upright pole of a crane or derrick. (Standard)

Master. A collier's term for the owner of the mine. (Gresley)

Master joint. A large and persistent plane of division that passes with regularity and parallelism through a number of beds. (Power)

Master lode. The most productive lode of a district (Standard). *See also* Champion lode.

Master wasteman (Eng.). The person who has charge of the wastemen. (G. C. Greenwell)

Mastic. 1. A mixture of bituminous material and other fine mineral matter, for use in highway construction and for application in a heated condition. (Bacon)
2. A kind of mortar or cement used for plastering walls. It is composed of finely ground oölitic limestone mixed with sand, litharge and linseed oil. (Century)

Mat. 1. An accumulation of broken mine timbers, rock, earth, etc., coincident with the caving system of mining. As the ore is extracted the mat gradually settles and forms the roof of the working levels, stopes, etc. 2. A hempen blanket made of ropes to cover shallow excavations when blasting therein to prevent damage by flying rocks, etc.
3. A lusterless or dull surface in a metal, produced by a method of finishing. 4. A tool for finishing a metal surface so as to produce a neat appearance. (Standard)

Mata (Sp.). Matte; *M. azul*, blue metal. (Halse)

Metacho (Mex.). An unproductive lode. (Lucas)

Matas de oro (Sp.). Ore chimneys. (Lucas)

Match. 1. A charge of gunpowder put into a paper several inches long, and used for igniting explosives. 2. The touch end of a squib. (Steel)
3. In founding, a casing of hard sand, block of plaster, or the like, for guarding any deficiency in the matching or joining of the parts of a mold. (Standard)

Match plate. In founding, a board or plate placed between the parts of a two-part flask and on the opposite sides of which the halves of a pattern are placed and rammed up, the plate being then removed to permit the halves of the pattern to come together. (Standard)

Matera (Colom.). A bunchy mine, or one in which the gold is found in pockets. (Halse)

Material man (Corn.). One who has the care of materials and issues supplies to miners (Min. Jour.) A warehouse man.

Matheson joint. A wrought-pipe joint made by enlarging the one end of the pipe to form a suitable lead recess, similar to the bell end of a cast-iron pipe, and receiving the male or spigot end of the next length. Practically the same style of a joint as used for cast-iron pipe. (Nat. Tube Co.)

Mathewson's device. An apparatus for separating matte and slag at lead-silver blast furnaces where matte is of secondary importance. (Peters, p. 297)

Matrass; Mattrass. A small, hard, glass tube closed at one end, used in blowpipe analysis. (Webster)

Matrice. *See* Matrix.

Matrícula (Sp.). A register for mines, etc. (Crofutt)

Matrix. 1. The rock or earthy material containing a mineral or metallic ore; the gangue (Raymond). Sometimes called Ground mass.
2. The material which forms a cushion, or binder, for use in the construction of pavements. (Bacon)
3. The impression or mold of the exterior of a fossil, crystal, or other mineral left in the containing rock when a fossil is removed, or the mass in which a fossil or mineral is embedded. (Standard)

Matrix jewelry. Jewelry cut from some stone, as opal or turquoise, and its surrounding matrix. Such mixtures are called opal matrix, turquoise matrix, etc. (Webster)

Matrix rock. Same as Land-pebble phosphate. (Power)

Matriz (Sp.). Matrix, gangue, or veinstone. (Halse)

Matte. A product obtained in smelting sulphide ores of certain metals, as copper, lead, or nickel. It is crude metal combined with more or less sulphur, and requires to be further purified. (Webster). A heterogeneous mixture of metallic sulphides produced in smelting sulphide ores. Matte is brittle and the fracture ranges from coarse grained through fine grained to conchoidal; its color is bronze-like, often bluish, again dark to a light gray; the luster is bright. The leading components are sulphur, copper, iron, lead, nickel; of secondary importance are zinc, cobalt, manganese, bismuth, and precious metals. As to the constitution of matte the freezing point curves show that there are present chemical compounds, eutectic mixtures and solid solutions (Hofman, General metallurgy, p. 884). Copper matte usually contains 30 to 40 per cent sulphur.

Matt glaze. A dull glaze applied to some burned clay products. (Ries)

Matting. The process of smelting sulphide ores into matte. (Weed)

Matting tool. *See* Mat, 4.

Mattock. 1. A miner's pickaxe. (Skinner)
2. An implement for digging and grubbing. The head has two long steel blades, one like an adz and the other like a narrow ax, or the point of a pickax. (Webster)

Matura diamond. 1. An inferior diamond from Matura, Ceylon, India.
2. A name given in Ceylon to zircon from the district of Matura. (Century)

Maturation. In alchemy, the conversion of a base metal into gold. (Webster)

Mature. Having reached the maximum vigor and efficiency of action or the maximum development and accentuation of form: said of streams, the sculpture of land by erosion, and the resultant topography. *Compare* Young and Old. (La Forge)

Mature river. A river in the third and most perfect stage of development.

Maturity. That stage in the development of streams or in land sculpture at which the process is going on with maximum vigor and efficiency or the maximum development and accentuation has been reached. *Compare* Youth and Old age. (La Forge)

Maul (Derb.). A large hammer or mallet. (Raymond)

Maundril (Derb. and Wales). A prying pick with two prongs (Raymond). Also spelled Mandrel, Mandril.

Maverick. Anything dishonestly obtained, as a saddle, mine, or piece of land. (Century)

Maxton screen. A screening machine of the trommel class, rotating on rollers that support the tube. There are radial elevating ribs, to prevent wear of screen cloth and to elevate the oversize. Unscreened material is delivered on the inside screen surface, undersize passing through and oversize being elevated and discharged into a separate launder. (Liddell)

Mayencian. A division of the Miocene Tertiary, typically developed in the Mainz (or Mayence) basin, Germany. (Standard)

Mayoral (Peru). A head overseer or boss. (Halse)

Mayordomo. 1. (Mex.) In the *patio* process, the chief of the muleteers. 2. (Peru) A foreman or boss. (Halse)

Maza (Sp.). A hammer; a stamp head. (Lucas)

Mazamorra (Colom.). 1. Imperfect or poor working of a placer mine. 2. An insignificant part of the ground sluice abandoned to poor people for the gold they can get out of it. (Halse)

Mazamorras (Bol.). Mud streams from the flanks of the Illimani mountain. (Halse)

Mazamorrear (Colom.). To wash gold. To glean. (Halse)

Mazamorrero (Colom.). A gold washer who works on his own account. (Halse)

Mazapilite. An arsenate of calcium and iron, closely related to arseniosiderite. Occurs in black prismatic crystals. (Century)

Mazo (Mex.). 1. Striking hammer. 2. Stamp for crushing ore. (Dwight)

Mazout; Marsut. A Russian petroleum product remaining after the distillation of benzine and kerosene. It is a brownish black liquid, and used largely as a fuel oil. (Webster)

Meadow ore. Bog iron ore. (Power)

Meander. One of a series of somewhat regular and looplike bends in the course of a stream, developed, when the stream is flowing at grade, through lateral shifting of its course toward the convex sides of the original curves. (La Forge)

Meander line. A surveyed line, usually irregular, but not a boundary line (Webster). A traverse line.

Mean refractive index. The mean of the values of the index of refraction for the extreme red and the extreme violet rays. (Webster)

Mear; Meer. *See* Mere.

Measures. In geology, a group or series of strata having some characteristic in common, as coal measures: almost obsolete. (La Forge)

Measures head. A heading or drift made in various strata. (Gresley)

Measuring chain. A surveyor's chain, containing 100 links of 7.92 inches each. (Century)

Measuring day (Scot.). The day when the manager or other official measures the amount of work done in the mine. (Barrowman)

Meat earth. The vegetal mold.

Mecapal (Mex.). 1. Sheet-iron scraper used by ore sorters. 2. Flat strap or rope that goes over the head of an ore carrier to support the load. (Dwight)

Mecate (Mex.). Coarse twine. Twine made of Maguey fiber, or Ixtle. (Dwight)

Mecha (Mex.). 1. A fuse. 2. A wick for a lamp or a candle. 3. A torch (Dwight). *M. de seguridad*, safety fuse. (Lucas)

Mechanical efficiency. Mechanical efficiency of an air compressor is the ratio of the air-indicated horsepower to the steam-indicated horsepower in the case of a steam-driven, and to the brake horsepower in the case of a power-driven machine. (A. I. M. E., Bull. 140, p. lvii)

Mechanical mixture. A composition of two or more substances, each remaining distinct, and generally capable of separation by mechanical means. (Standard)

Mechanical puddlers. A stirring device by which a bath of molten metal is agitated by mechanical rabbles, to save hard labor. The term puddling, now applied in metallurgy exclusively to the above process, originally referred to the puddling of clay, or clay and charcoal, upon the masonry of a furnace hearth to form a lining. (Winchell)

Mechanical rabble. A rabble worked by machinery (Standard). *See* Rabble, 3.

Mechanics. The branch of physics that treats of the phenomena caused by the action of forces on material bodies. It is subdivided into *statics*, *dynamics*, or *kinetics;* or into the *mechanics of rigid bodies*, and *hydromechanics* (including *hydrostatics and hydrodynamics.*) (Standard)

Mechazo. (Sp.). A misfire, due to burning of fuse without exploding the charge. (Halse)

Media (Sp.). A medium sized drill. (Halse)

Media barreta (Peru). An inclined shaft. (Dwight)

Medial moraine. A moraine formed interiorly upon a glacial stem, by the coalescence of two lateral moraines of the coalescing glaciers (Standard). *See* Moraine.

Medida (Sp.). A measure; a standard gauge. (Halse)

Mediophyric. Moderately porphyritic rocks with phenocrysts between 5 mm. and 1 mm. in longest diameter. *See* Magnophyric and Minophyric. (Iddings, Igneous Rocks, p. 200)

Mediosilicic. In petrology, containing between 50 and 60 per cent silica: said of some igneous rocks; same as Intermediate. (La Forge)

Medir (Sp.). 1. To measure. 2. *M. una mina*, to survey a mine. (Halse)

Medium steel. Steel containing from 0.15 to 0.30 per cent of carbon. Used especially for structural purposes. (Webster)

Medjidite. A hydrous sulphate of uranium and calcium, occurring with uraninite. (Century)

Meend; Meand (Forest of Dean). Old ironstone workings at the outcrop, some of which were worked by the Romans. (Gresley)

Meerschaum; Sepiolite. A tough, compact, hydrous magnesium silicate. (U. S. Geol. Surv.)

Meet. 1. (Eng.) To keep pace with, for example, to keep sufficient supply of coal at the pit bottom to supply the winding engine. (Gresley) 2. To come together exactly, as in survey lines from opposite directions.

Meeting. 1. A siding or by-pass on underground roads. (Gresley) 2. (Newc.) The place at middle-depth of a shaft, slope, or plane, where ascending and descending cars pass each other. (Raymond)

Megabasite. A tungstate of iron and manganese, probably a variety of wolfram. (Century)

Megalith. One of the huge stones or bowlders used in various types of prehistoric monuments, such as the menhir, dolmen, etc. (Webster)

Megalithic masonry. Masonry in very large stones, whether wholly or partly rough. (Standard)

Megascopic. Large enough to be distinguished with the naked eye; the antithesis of microscopic. *See* Macroscopic. Used also to describe methods of observation without the microscope or with the eye alone. (Kemp)

Meinonite. A vitreous, colorless to white, transparent to translucent, calcium-aluminum silicate, $Ca_4Al_6Si_6O_{25}$. Tetragonal. (Dana)

Meizoseismal. Of, or pertaining to, the maximum destructive force of an earthquake. (Standard)

Meizoseismal curve. A curved line connecting the points of the maximum destructive energy of an earthquake shock around its epicentrum. (Standard)

Mejora (Sp.). Improvement; *M. de boca*, an improvement or alteration made in the entrance to a mine. (Halse)

Melaconite. Black copper oxide, CuO. Contains 79.8 per cent copper. The name given to an earthy, black, massive variety of tenorite. (U. S. Geol. Surv.)

Melanchyme. A bituminous substance found in masses in the brown coal of Zweifelsruth, Bohemia. That part of this substance which is soluble in alcohol is termed rochlederite, the residue melanellite. (Bacon)

Melanellite. That portion of melanchyme which is insoluble in alcohol; it is black and gelatinous. (Bacon)

Melanite. A black variety of common garnet. (Dana)

Melanocratic. A name applied by W. C. Brögger to those eruptive rocks in which the dark or ferromagnesium minerals are in excess over the light ones. The antithetical term is leucocratic. Melanocratic is derived from two Greek words meaning the 'black prevails.' (Kemp)

Melanterite. Copperas; hydrous ferrous sulphate, $FeSO_4+7H_2O$. (Webster)

Melaphyre. 1. Any dark-colored felsitic igneous rock. 2. A basalt or fine-grained diabase whose original minerals have been partly or wholly altered to calcite, chlorite, epidote, limonite, etc.; now little used. 3. An olivine basalt of pre-Tertiary age: obsolete in this sense. (La Forge)

Melilite. An orthosilicate of sodium, calcium, aluminum, and other metals. It is a constituent of certain igneous rocks, replacing the feldspar (Webster). The name of the mineral is sometimes prefixed to the names of rocks containing it, as melilite-monchiquite. (Kemp)

Melilite-basalt. A rare basaltic rock whose feldspathoid is melilite. It was first identified by Stelzner in 1882. The rock is excessively basic. Almoite is the same rock in dikes. (Kemp)

Melinite. 1. A high explosive similar to Lyddite, said to be chiefly picric acid. (Webster)
2. A species of soft, unctuous clay, common in Bavaria, and probably identical with bole. (Standard)

Mell (Eng.). A large hammer. (Bainbridge)

Mellan (Braz.) *See* Cascalho.

Mellite. A mineral of honey color, found in crystals and granular masses in brown coal, partly as a result of vegetal decomposition; honey stone. $Al_2.C_{12}.O_{12}.18H_2O$. (Webster)

Mellowing. A change of color in building stone, due to oxidation of some ferruginous compound, or to absorption of impurities. (Standard)

Melonite; Tellurnickel. A nickel telluride, Ni_2Te_3. In indistinct granular and foliated particles. Color reddish-white, with metallic luster. (Dana)

Melt. 1. To reduce from a solid to a liquid state, usually by heat; to liquefy; to fuse. 2. A melted substance; also the mass melted at a single operation, or the quantity melted during a certain period. (Webster)

Melting furnace. A glass-makers' furnace in which the frit for the glass is melted before it goes to the blowing furnace. (Century)

Melting point. The degree of temperature at which a solid substance melts or fuses. (Webster)

Melting pot. A crucible. (Standard)

Member. In the usage of the U. S. Geological Survey, a division of a formation, generally of distinct lithologic character or of only local extent. (La Forge)

Memoria (Mex.). 1. Pay roll. 2. A weekly account of mine expenses. (Halse)

Mena (Mex.). A mineral vein; ore. *M. crudo*, raw or crude ore; *M. grueso*, ore in large lumps; *M. recio*, massive ore. (Halse)

Menaccanite. A synonym for Ilmenite.

Ménage (Fr.). A club of working men in Scotland and North England (Century). Common in mining districts.

Mend (Eng.). To load, or reload, trams at the gate-ends out of smaller trams used only in the working faces of thin seams. (Gresley)

Mendeleeff group. In chemistry, one of the groups into which the elements are classified in the periodic system. (Webster)

Mendeleeff's law. *See* Periodic law.

Mendits (Fr.). Same as Putters. Trammers. (Gresley)

Mendozite. A massive, fibrous, white, hydrous, sodium-aluminum sulphate, $NaAl(SO_4)_2+12H_2O$. Called also Alunogen and Soda alum. (Dana)

Meneghinite. A lead-antimony sulphide mineral, $4PbS.Sb_2S_3$. Orthorhombic. In slender prismatic crystals; also massive. Color blackish lead-gray. (Dana)

Menilite. A concretionary, opaque, dull, grayish variety of opal. (Dana)

Meniscus. 1. A lens concave on one side and convex on the other, especially when of true crescent-shaped section. 2. The surface of a liquid column. Its curvature is determined by the surface tension, being concave when the walls are wetted by the liquid and convex when not. (Webster)

Men on! (Scot.). A brief expression to indicate that men are on the cage to be raised, or lowered, in the shaft. (Barrowman)

Menucos (Arg.). Dangerous bogs usually hidden by a luxuriant vegetation. (Halse)

Mephitic. Foul; noxious; poisonous; stifling. (Century)

Mephitic air. An old name for carbon dioxide (Webster). Black damp; choke damp.

Mephitis. A noxious exhalation caused by the decomposition of organic remains: applied also to gases emanating from deep sources, as in mines, caves, and volcanic regions. (Standard)

Mercantile system. A theory in political economy that wealth consists not in labor and its products, but in the quantity of silver and gold in a country, and hence that mining, the exportation of goods, and the importation of gold should be encouraged by the State: held generally up to the close of the 18th century. (Standard)

Merced (Sp.). A gift. This term is applied to a grant that is made without any valuable consideration. (Raymond)

Merchant bar. *See* Merchant iron.

Merchant iron. Iron in the common bar form, convenient for the market. Called also Merchant bar. (Standard)

Merchant rolls. Finishing rolls in a merchant-iron mill (Standard). *See* Merchant train.

Merchant train. A train of rolls for reducing iron piles, or steel ingots, blooms, or billets, to bars of any of the various round, square, flat, or other shapes, known as merchant iron or steel. (Raymond)

Mercurial horn-ore. Same as Calomel. (Standard)

Mercurio (Sp.) 1. Mercury, or quicksilver. 2. Mercury ore. *M. córneo*, calomel. (Halse)

Mercury. A heavy, silver-white, liquid, metallic element; also called popularly quicksilver. Hydrargyrum. Symbol, Hg; atomic weight, 200.6; specific gravity, 13.54. (Webster)

Mercury arc. An electric arc transmitted by mercury vapor in a vacuum tube. (Webster)

Mercury cup. 1. The cistern of a mercury barometer. 2. A cup containing mercury for making an electric connection, as by dipping the ends of two wires in it. (Standard)

Mercury furnace. A furnace in which cinnabar is roasted in order to cause the pure mercury to pass off in fume, which is condensed in a series of vessels. (Century)

Mercury gatherer. A stirring apparatus that causes quicksilver, that has become floured or mixed with sulphur in amalgamating, to resume the fluid condition, through the agency of mechanical agitation and rubbing. (Century)

Mercury ores. Native mercury; cinnabar (sulphide). (Raymond)

Mercury trap. *See* Trap, 5.

Mere; Mear. 1. A boundary-line. 2. In Derbyshire, a measure of mining-claims of 29 or 31 yards (Standard). The discoverer of the lode was allowed to claim two meres.

Mere stake; Meer stake; Mear stake. A stake to mark the boundary of mining property. (Mander)

Merestone. A stone used as a boundary; also, figuratively, a boundary. (Standard)

Mergulhador (Braz.). In alluvial mining, a diver. (Halse)

Mergulhar (Braz.). To work alluvial sands by diving. (Halse)

Mergulho (Braz.). A method of diving for auriferous river sand, employed by poor miners. (Halse)

Meridian. A great circle on the surface of the earth, passing through the poles and any given place. (Webster). A north-and-south line. Called also Terrestial meridian. (Standard)

Merma (Mex.). Ore lost by abrasion during treatment or transportation. (Dwight)

Merohedral. In crystallography, having only a part of the planes required by the full symmetry of the form. (Standard)

Merrill filter-press. A variation of the plate-and-frame press. (Liddell)

Merrit plate. *See* Bloomery.

Mersey "yellow coal." A synonym for Tasmanite.

Mesa (Sp.). 1. A high, broad, flat table-land, bounded, at least on one side, by a steep cliff rising from lower land; a plateau; terrace; flat-topped hill. (Standard)
2. Concentration table. 3. The hearth of a furnace. (Dwight)

Mesabite. A name suggested by H. V. Winchell for the ocherous goethite found so abundantly on the Mesabi range, Minnesota. (Chester)

Mescal (Sp.). *See* Pulque.

Mesh. 1. One of the openings or spaces in a screen. The value of the mesh is usually given as the number of openings per linear inch. This gives no recognition to the diameter of the wire, so that the mesh number does not always have a definite relation to the size of the hole. (Richards)
2. Engagement, or working contact, of the teeth of wheels or of a wheel and rack. (Webster)

Mesh structure. A structure resembling network or latticework found in certain alteration products of minerals. Called also Net structure, Lattice structure. (Standard)

Mesitine spar. Mesitite; a carbonate of magnesium and iron, $2MgCO_3.FeCO_3$. (Dana)

Mesitite. *See* Mesitine spar.

Mesole. Same as Thompsonite.

Mesolite. A mineral intermediate between natrolite and scolecite. In acicular and capillary crystals; delicate divergent tufts, etc. White or colorless. Occurs in amygdaloidal basalt at numerous places. (Dana)

Mesolithic. Designating a stage of culture intermediate between the Paleolithic and Neolithic. (Webster)

Mesosiderite. A variety of meteorite. (Standard)

Mesostasis. A synonym for Basis, suggested by Gümbel. (Kemp)

Mesothermal. Of, having, or pertaining to a medium temperature. (Webster)

Mesothorium. A radio-active element found in monazite sand and other thorium minerals. First identified and described by Hahn in 1905. It is a substitute for radium in the manufacture of certain luminous paints, and for medicinal purposes.

Mesotype. A variety of natrolite. (Dana)

Mesozoic. One of the grand divisions or eras of geologic time, following the Paleozoic and succeeded by the Cenozoic era, comprising the Triassic, Jurassic, and Cretaceous periods. Also the group of strata formed during that era. (La Forge)

Mesquite (Sp.-Mex.). A mimosaceous tree or shrub of the southwestern United States and Mexico, often forming dense thickets and frequently constituting the only arborescent vegetation of a region. It has pinnate leaves, small, fragrant flowers in a dense raceme, and bean-like pods that are rich in sugar and form an important food for stock. (Webster)

Mess kit. The cooking and table utensils for a mess, with the receptacle in which they are packed for transportation. (Webster)

Meta. In petrology, when used as a prefix to the name of a rock, signifies that the rock has undergone more or less change in mineral or chemical composition through metamorphism. (La Forge)

Metabolite. Wadsworth's name for altered, glassy trachytes, of which lassenite is the unaltered form. (Kemp)

Metachemical metamorphism. Dana's term to describe that variety of metamorphism which involves a chemical change in the rocks affected. (Kemp)

Metacinnabarite. A mineral having the same composition as cinnabar, but black in color, and crystallizing in isometric forms (tetrahedral). *See* Cinnabar. (U. S. Geol. Surv.)

Metaclase. A rock possessing cleavage secondarily developed during rock deformation. *Compare* Protoclase. (C. K. Leith, Bull. 239, U. S. Geol. Surv., p 12)

Metacryst. A well-developed crystal of a secondary mineral, like garnet, staurolite, or andalusite, resembling a phenocryst, imbedded in the groundmass of a comparatively fine-grained metamorphic rock. (La Forge)

Metadiabase. A shortened form of metamorphic diabase, suggested by Dana for certain rocks simulating diabase; but supposed to have been produced by the metamorphism of sediments. *Compare* Pseudo-diabase. (Kemp)

Metadiorite. Dioritic rocks produced as described under metadiabase. *Compare* Pseudo-diorite. (Kemp)

Metal. 1. Any of a class of substances that typically are fusible and opaque, are good conductors of electricity, and show a peculiar metallic luster, as gold, bronze, aluminum, etc. Most metals are also malleable, and comparatively heavy, and all except mercury are solid at ordinary temperatures. Metals constitute over three-fourths of the recognized elements. They form oxides and hydroxides that are basic, and they may exist in solution as positive ions. 2. Ore from which a metal is derived. (Webster)
3. (No. of Eng.) In coal mining, indurated clay or shale. *See* Bind. (Gresley)
4. Cast iron, more particularly while melted. 5. Broken stone for road-surfaces or for railway ballast. 6. molten glass. 7. Railway rails. (Standard)
8. Copper regulus or matte obtained in the English process. The following varieties, are distinguished by appearance and by their percentage of copper (here given in approximate figures): *Coarse*, 20 to 40; *red*, 48; *blue*, 60; *sparkle*, 74; *white*, 77; *pimple*, 79. *Fine metal* includes the latter four varieties. *Hard metal* is impure copper containing a large amount of tin. 9. (Scot.) All the rocks penetrated in mining ore. 10. *Road metal*, rock used in macadamizing roads. (Raymond)

Metal (Sp.). This term is applied both to the ore and to the metal extracted from it. It is sometimes used for vein, and even for a mine itself (Raymond). *M. azul*, lead ore. *M. crudo* (Peru), oxidized ore. *M. de ayuda*, fluxing ore of any kind. *M. de beneficio*, second class ore worked on the patio. *M. de cebo*, rich ore, usually treated in small reverberatory furnaces. *M. de correr*, pure tin ore. *M. de exportación*, first-class ore ready for sale. *M. de fuego*, smelting ores. *M. de labores*, smalls from the workings of the mine. *M. de pie*, ore amenable to the *patio* process. *M. de primera clase*, first-class ore ready for sale. *M. de quema* (Peru), sulphide ore. *M. en barras*, bullion. *M. en piedra* (Peru), crude ore. *M. gabarro*, first and second-class ore, from the size of an egg to that of an orange. *M. granza*, fine ore, smalls. *M. hecho*, hand-picked, rich ore. *M. jugoso*, wet ore, *i. e.*, lead ore. *M. negro*, blende. *M. ordinario*, common ore. *M. de pepena*, the best class of selected ore. (Halse)

Metalada (Mex.). Discovery of ore in a barren working. (Dwight)

Metal bath. A bath, as of mercury, or tin, employed for chemical processes requiring great heat. (Standard)

Metal drift (Lanc.). A heading driven in stone. (Gresley)

Metaled. 1. Surfaced with stone; macadamized: said of an ordinary road. 2. Stone ballasted: said of a railway. (Standard)

Metales (Sp.) Ores extracted from a mine. *M. calidos*, minerals capable of amalgamation. (Lucas) *M. de fundición.* Ores for smelting (Min. Jour.) *M. humildes* (Peru) Silver ores that amalgamate readily without sickening or flouring the mercury. (Dwight) *M. frios*,, minerals unsuitable for amalgamation. *M. nobles*, free milling ores; noble ores. (Lucas)

Metalifero (Sp.). Metalliferous. (Lucas)

Metaline. A trade name for a metallic, dark-colored compound or alloy, used in the form of plugs inserted into holes drilled into machine bearings, for obviating friction, and as a substitute for ordinary lubricants. (Webster)

Metalist. One who works in, or has special knowledge of, metals (Standard). A metallurgist.

Metallic. 1. Of or belonging to metals, containing metals, more particularly the valuable metals that are the object of mining. (Rickard)
2. Applied to minerals having the luster of a metal, as gold, copper, etc. (Dana)

Metallic iron. Metal-iron, as distinguished from iron ore. (Standard)

Metallic luster. A luster characteristic of metals in a compact state, and shown also by some other substances, as certain minerals and dyes. It is due to more or less of selective absorption in the surface layer, combined with a strong reflection. The blackness of finely divided metals is explained as due to repeated reflection and absorption of light among the particles. (Webster)

Metallic oxides. Those oxides that consist of a metallic element and oxygen, and are for the most part basic. (Standard)

Metallic sulphide. A sulphide in which the basic radical is a metal: applied chiefly to certain minerals, as iron sulphide (pyrite), zinc sulphide (blende), etc. (Standard)

Metallic tremor. The trembling palsy of metal workers, as of workers with lead or quicksilver; the mercurial-trade disease. (Standard)

Metalliferous. Producing or containing metal; yielding metal. (Webster)

Metallify. To convert into metal. (Webster)

Metalline. 1. Pertaining to or resembling a metal. Metallic. 2. Impregnated with metallic salts, as *metalline* water. (Webster)

Metallites. A word used by M. E. Wadsworth to embrace all ores or metalliferous material. (Power)

Metallize. To turn into a metal; to infuse mineral or metallic particles into, as the pores of wood. (Standard)

Metallography. 1. The science or art of metals and metal working; also a treatice on metals. 2. The microscopic study of the structure of metals and their alloys. It utilizes the light reflected by polished surfaces.

Metallization. The process, or group of processes, whereby valuable metals, or minerals containing such metals, are introduced into the rocks. The term *mineralization* is often used in the above sense and is really more comprehensive. The formation of garnet in limestone, for example, is a result of mineralization but may have no economic significance whatever. (Ransome)

Metalloid. 1. An alkali metal, as sodium, or an alkaline-earth metal, as calcium; so called by Davy because not supposed to be well-defined metals. 2. Certain elements, as arsenic, antimony, that share the properties of metals and nonmetals. 3. Having the appearance of a metal. (Webster)

Metallurgical engineer. Any one versed in the principles of metallurgy, including inorganic chemistry and general engineering, and who applies them on a commercial scale in any of the processes for the extraction of metals from their ores, or from alloys.

Metallurgical fume. A mixture of fine particles of elements and metallic and nonmetallic compounds either sublimed or condensed from the vapor state. In practice, it usually has mixed with it small proportions of fine flue dust. Moreover, fume may consist of very small, solid particles and of very small liquid particles, the latter like a mist or fog. The composition of metallurgical fume varies within wide limits,

dependent upon the method of smelting employed. (Fulton, p. 32, Bull. 84. Bu. Mines). *See also* Fume.

Metallurgical smoke. A term applied to the gases and vapors, and fine dust entrained by them, that issue from the throat of blast furnaces, reverberatory smelting furnaces, or roasting furnaces. It consists of three distinct substances, gases, (including air), the flue dust, and the fume. (Fulton, p. 8, Bull. 84, Bu. Mines)

Metallurgist. One who is skilled in, or who practices metallurgy. *Compare* Metallurgical engineer.

Metallurgy. The science and art of preparing metals for use from their ores by separating them from mechanical mixture and chemical combination. It includes various processes, as smelting, amalgamation, electrolytic refining, etc. Metallurgy, as generally understood, is concerned with the production of raw metallic materials, the manufacture of which, into finished articles, belongs to other arts. (Webster)

Metal man. 1. (Lanc.) One who repairs underground roads. (Gresley)
2. One who works in metals. (Standard)

Metal-notch. *See* Tap hole, 1.

Metal ridge (No. of Eng.). 1. A pillar or pillars that form a support for a mine roof. (Gresley)
2. (Eng.). The strata forced up by a creep. (Bainbridge)

Metals (Scot.). A general name for the strata in which minerals occur. (Barrowman)

Metal stone (Newc.). Argillaceous stone. Shale and sandstone. (Min. Jour.)

Metameric. Having the same elements united in the same proportions by weight, and with the same molecular weights, but with different structure or arrangement of the ultimate parts. (Power)

Metamórfico (Sp.). Metamorphic.

Metamorphic. Characteristic of, pertaining to, produced by, or occurring during metamorphism. (La Forge) Said of certain rocks.

Metamorphism. In geology, any change in the texture or composition of a rock, after its induration or solidification, produced by exterior agencies, especially by deformation and by rise of temperature. The processes and results of cementation and of weathering are not ordinarily included. (La Forge) The most important agents are *heat*, *moisture* and *pressure*.

Metamorphosis. Change of form, structure or substance; transforation of any kind. (Webster)

Metamorphous. Same as Metamorphic.

Metapepsis. Regional metamorphism, due to steam or boiling water under great pressure; a term proposed by G. H. Kinahan (Standard). Also called Parotepsis.

Metapil (Mex.). The grinding stone of an arrastre, etc. (Dwight)

Metasilicate. A salt of metasilicic acid; especially applied to certain minerals more frequently called bisilicates. (Standard)

Metasomatic. In geology, characteristic of, pertaining to, produced by, or occurring during metasomatosis. (La Forge.) The term is especially used in connection with the origin of ore deposits. The corresponding noun is metasomatosis, but 'replacement' is a good English equivalent. (Kemp)

Metasomatosis; Metasomatism. Chemical alteration of a mineral or a rock; the replacement of a mineral by another through chemical action. (La Forge)

Metasome. An individual mineral developed in another mineral. (Lindgren, p. 158)

Metate (Mex.). An iron bucking board for grinding ore samples. (Dwight)

Metatropy. A change in the physical character of a rock mass while there is no essential change in its constituents, *e. g.*, the vitrification and devitrification of rocks. (Power)

Metaxite. 1. Hauy's name for micaceous sandstone. (Kemp)
2. A fibrous serpentine. (Webster)

Meteoric iron. Iron found in meteors; also, an iron meteorite. (Standard)

Meteoric stone. A meteorite, especially one of a stony composition or appearance. (Standard)

Meteoric water. Water that previously existed as atmospheric moisture, or surface water, and that entered from the surface into the voids of the lithosphere. (Meinzer)

Meteorite. A stony, or metallic, body that has fallen to the earth from outer space; an Aërolite. (Webster)

Meter; Metre. 1. An instrument, apparatus, or machine for measuring fluids, gases. electric currents, grain, etc., and recording the results obtained; as, a gas *meter;* a water *meter;* an air *meter.* 2. The fundamental unit of length in the metric system, originally defined as one ten-millionth of the distance on the earth's surface from the pole to the equator, now as the distance between two lines on a certain metallic rod preserved in the archives of the International Metric Commission at Paris (Standard). It is equal to 39.37079 inches.

Meter oil. An oil of low cold-test, like the light lubricating oils from Texas crude oil. (Bacon)

Methane. A gaseous hydrocarbon, CH_4, light odorless, inflammable, occurring naturally as a product of decomposition of organic matter in marches and mines, and produced artificially by dry distillation of many organic substances. (Webster)

Methanephone. An instrument for detecting methane in mine air. It contains an electric battery that sustains a small electric glow-light. As soon as a certain percentage of methane enters the workings a tiny explosion occurs in the fuse head, where a fine wire filament is melted and starts a bell to ringing continuously. (Coal Age, Mar. 30, 1918, p. 579)

Methanometer. An instrument, resembling a eudiometer, to detect the presence and amount of methane, as in coal mines. (Webster)

Metra. A pocket implement combining the uses of many instruments, as thermometer, level, plummet, and lens. (Standard)

Metric carat. A unit of weight, 200 mg., for weighing precious stones. *See also* Carat, 3. (Webster)

Metric system. A system of weights and measures depending upon the meter, in which the original factors are derived from the meter. The system includes measures of length, of which the *meter* is the unit; measures of surface, of which the *are* is the unit; measures of capacity of which the *liter* is the unit; and weights, of which the *gram* is the unit. (Standard)

Metric ton. One thousand kilograms, equal to 2204.6 avoirdupois pounds. (Webster)

Mett (Scot.). An old measure of capacity for coal. (Barrowman)

Mexican onyx. A variety of calcite, chiefly from Tecali, Mexico, used for interior decorations (Standard). *See also* Onyx marble.

Mexican tile. A term sometimes applied to roofing tile of semicircular cross section. (Ries)

Meymacite. A resinous, light-brown hydrated tungstic oxide. $WO_3.H_2O$, that is formed by the alteration of scheelite. (Dana)

Mezcla (Mex.). 1. Furnace charge. 2. Mortar. (Dwight)

Mezo; Meso. A term sometimes prefixed to the names of igneous rocks of Mesozoic age. (Kemp)

Mezzamajolica (It.). A decorated and glazed earthenware made in Italy prior to the introduction of the majolica ware. The figures on it are traced in blue or black, the flesh is white, and the draperies are blue. (Standard)

Miamia (Aust.). A screen of brushwood, supported on poles, and placed near a shaft to protect the men from the weather. (Davies)

Miargyrite. A sulphide of antimony and silver, occurring in monoclinic crystals of an iron-black color with a dark, cherry-red streak. (Century)

Miarolitic. In petrology, containing small interstitial cavities, formed when the rock solidified, into which small crystals may project: said of some igneous rocks. Also, characteristic of, pertaining to, or occurring in such cavities. (La Forge)

Miascite. A name coined from Miask, a locality in the Ural where a nephelite-syenite occurs whose dark silicate is biotite. Used also as a general name for biotitic nephelite-syenites. (Kemp)

Mica. A hydrous silicate having a very fine basal cleavage that renders it capable of being split into thin, tough, transparent plates. The most common varieties are *muscovite* and *biotite.* Phlogopite and lepidolite are prominent locally. (U. S. Geol. Surv.)

The name of the mineral is often prefixed to the name of the rock con-

taining it, as, mica-basalt, mica-tinguaite, mica-trachyte, etc. (Kemp). Called also Isinglass, Muscovy glass.

Micaceo-calcareous. Containing mica and calcite. (Standard)

Micaceous. Characteristic of, pertaining to, composed of, or containing mica. (La Forge)

Micaceous iron ore. A variety of hematite. (Power)

Mica diorite. A variety of diorite in which mica replaces hornblende. (Standard)

Micanite. An easily molded, prepared form of, mica used for insulating (Webster). A trade term.

Mica-peridotite. A variety of peridotite, consisting chiefly of altered olivine and biotite. (Kemp)

Micaphyre. A porphyry containing mica phenocrysts. (Webster)

Micapizarra (Sp.). A schist. (Halse)

Mica powder. A dynamite in which the dope consists of fine scales of mica.

Mica schist. A foliated, crystalline metamorphic rock composed of alternate layers of quartz and mica in various proportions, the typical one being about two-thirds quartz to one-third mica; although the proportion of the latter generally appears greater than it is, because the rock splits along the mica folia, thus showing the mica along on the flat surfaces. The true composition may be seen by looking at the squarely broken edges. (Roy. Com.) *See also* Schist.

Mica slate. A slate composed chiefly of fine mica. (La Forge)

Micatization. A metamorphic alteration of other material into mica. (Standard)

Mica trap. An English field name for dark, dike rocks rich in mica. (Kemp)

Mice-eaten quartz. Quartz full of holes, once occupied by sulphides, now decomposed and gone. (Davies)

Michigamme jasper. A highly altered ferruginous rock, usually carrying apparently fragmental quartz grains, found at Michigamme Mountain, Mich. (Ore Dep., p. 137)

Micro. Small. In lithology, indicating that the structure designated is so minutely developed as not to be recognized without the help of the microscope. (Century)

Microchemical tests. Chemical tests made on minute objects under a microscope. The form, color, and optical properties of the minute crystals are also used.

Microclastic. Clastic or fragmental, as rock composed of minute particles. (Standard)

Microcline. A mineral of the feldspar group, like orthoclase or common feldspar in composition, but triclinic in form. (Webster)

Microcosmic salt. Sodium-ammonium-hydrogen phosphate, $HNaNH_4PO_4$-$4H_2O$ (Liddell). Also called Stercorite.

Microcrystalline. Minutely crystalline: said of crystalline rocks of which the constituents are individually so minute that they cannot be distinguished from each other by the naked eye; cryptocrystalline. (Century)

Microcrystallitic. Of, or pertaining to, a metamorphic rock in which the devitrification has continued until the original glassy material has changed into little granules, needles, and hairs. (Standard)

Microdiabase. A name given by Loosen to aphanitic diabases. (Kemp)

Microdiorite. A name originally given by Lepsius to a fine-grained diorite-porphyry. (Kemp)

Microfelsite. A name used in microscopic work for those varieties of groundmass that do not affect polarized light, but that are not true glasses because they have a fibrous, a granular or some such texture. The textures are no doubt in many cases the results of devitrification of a glassy base. (Kemp)

Microfelsitic. The designation suggested by Zirkel for a devitrified glass when the devitrification has been carried so far that the hyaline character is lost, but not far enough to give rise to the development of distinctly individualized mineral forms. (Century)

Microfluidal. In petrology, having or consisting of a microscopic flow-structure. (Standard)

Microfoliation. Foliation distinctly visible only under the microscope. (Webster)

Microgeology. That part of geology relating to features that require microscopic study. (Webster)

Microgranite. A name used in microscopic work for those groundmasses of porphyritic rocks that consist of small quartz and feldspar crystals with granitoid texture on a small scale, *i. e.*, with components of about the same size and usually without crystallographic boundaries. *See* Granophyric. (Kemp)

Microgranitoid. In petrology, having microscopic granitoid structure. (Standard)

Microgranulite. The French equivalent of granophyric. (Kemp)

Micrographic. In petrology, having the composition and structure of graphic granite on a microscopic scale. (Standard)

Microlite. 1. Essentially a calcium pyrotantalate. Contains also small quantities of columbium, fluorine, tungsten, and other bases. Used as a gem. (U. S. Geol. Surv.)
2. A minute crystal, visible only under the microscope (Webster). A microlith. (Standard)

Microlith. One of the microscopic isotropic needle- and rod-shaped bodies found in vitrophyric rocks. (Standard)

Microlithic. Composed or constructed of small stones: opposed to Megalithic. (Standard)

Micromeritic. Of, or pertaining to, a crystalline structure so fine that it can only be recognized by a microscope. (Standard)

Micrometer. 1. An instrument for measuring very small angles or dimensions, generally used in connection with a microscope or telescope. There are a great variety of forms, but in nearly all the measurement is made by turning a very fine screw, which gives motion to a scale, spider-line, lens, prism, or ruled glass plate. 2. A micrometer-caliper or gage. (Standard)

Micromineralogy. Mineralogy based on the use of the microscope.

Micropegmatite. Microscopic pegmatite. A term applied to the groundmass of porphyritic rocks whose microscopic quartz and feldspar mutually penetrate each other. The several parts of the same crystal, though isolated, extinguish together. *See also* Granophyric. (Kemp)

Micropegmatitic. In petrology, same as micrographic, which is much better and which is replacing it. (La Forge)

Micropegmatitic texture. A microscopic intergrowth of two minerals, especially of quartz and feldspar in which one mineral contains particles of the other arranged in a more or less regular pattern which, from its fancied resemblance to certain ancient inscriptions has been called also "graphic texture." (Ransome)

Microperthite. A variety of rock-making feldspar composed of orthoclase thickly set with microscopic spindles or plates of albite (la Forge). It is common in gneisses. *Compare* Granophyric.

Microphylline. Composed of minute leaflets or scales. (Century)

Microphysiography. Same as Petrography. (Standard)

Micropoikilitic. A textural term suggested by G. H. Williams to describe those minerals that are speckled with microscopic inclusions of other minerals, having no definite relations to each other or to their host. Poikilitic is often spelled poicilitic or pœcilitic. (Kemp)

Microporphyritic. Microscopically porphyritic. (Standard)

Microscope. An optical instrument, consisting of a lens, or combination of lenses, for making enlarged or magnified images of minute objects. (Webster)

Microscopic. Minute; perceivable only by the aid of a microscope.

Microsection. 1. A transparent, thin section of some substance mounted for examination with the microscope (Standard). 2. A thin section of rock so mounted for petrographic examination.

Microseism. A slight tremor or vibration of the earth's crust. (Standard)

Microseismometer; Microseismograph. An apparatus for indicating the direction, duration, and intensity of microseisms. (Standard)

Microspherulitic. In petrology, having a texture composed of minute spherulites, closely packed. (Standard)

Microstructures. The structural features of rocks requiring microscopic examination. (Standard)

Middle band. A stratum of rock, or more usually soft dirt, near the middle of a coal seam (Steel). *See* Middle man.

Middle man. A stratum of rock dividing or separating two seams or beds of coal. (Sloss-Sheffield Steel & Iron Co. *v.* Edwards, 70 Southern, p. 286). *See* Middle band.

Middles (Eng.) A variation of middling.

Middletonite. A brown, resinous, brittle mineral found between layers of coal at the Middleton collieries, near Leeds, England, and also at Newcastle; it has a specific gravity 1.6, does not alter at 210° C., and is soluble in cold concentrated sulphuric acid. (Bacon)

Middling. The second quality of ore obtained by washing. Usually used in the plural form. *See* Head, 10; *also* Slime; and Tailings. (Webster)

Middling-pale solder. An alloy of tin, lead, and bismuth; used by pewterers. (Standard)

Mid-door (Scot.). The middle one of three landing places in a shaft. (Barrowman)

Mid-feather. 1. (Derb.) Stringers of ore connecting two larger bodies. (Hooson)
2. A support to the center of a tunnel. (Standard)

Midges (No. of Eng.). Lamps (not safety) carried by trammers, etc. (Gresley)

Mid-wall (Scot.) A close wooden partition dividing a shaft into compartments. (Barrowman)

Mid-workings. 1. (Scot.) Mine workings above or below in the same mine or colliery (Gresley). 2. *See* Mid-door.

Miersite. A bright-yellow silver iodide, AgI, which crystallizes in the isometric system. (Dana)

Miesite. A brown variety of pyromorphite that contains calcium. (Standard)

Mijakite. An andesite from the Japanese island of Mijakeshima, from which the name is derived. It is porphyritic with phenocrysts of bytownite, augite, hypersthene, and biotite. In the groundmass are brown pyroxene, feldspar, and basis. Largely on the results of the chemical analysis, the brown pyroxene is believed to be a manganese-bearing, triclinic variety related to babingtonite, hence the new name for the rock. (Kemp)

Mil. In electricity, a unit of length in measuring the diameter of wire; 1/1000 inch (Standard). *See* Circular mil.

Milarite. A vitreous, colorless to greenish, brittle, hydrous, potassium-calcium-aluminum silicate, $HKCa_2Al_2(Si_2O_6)_6$. In hexagonal prisms. (Dana)

Mild, or Soft steel. Steel containing less than 0.15 per cent of carbon. Highly ductile and is used for boiler plates, etc., (Webster). *See also* Steel.

Mild and tough. Mellowed or ripened by weathering; said of brick clay; opposite of Short and rough. (Standard)

Mildewbronze. Bronze made to look as if mildewed by long burial underground. (Standard)

Mile (Eng. and U. S.). A measure of length equal to 5,280 feet, 1,760 yards, 880 fathoms, 80 chains, 1,609.3 meters.

Milkstone. 1. Any of various white stones, as flint pebble. (Webster)
2. A flint whitened by fire, found among prehistoric remains. (Standard)

Milky quartz. Vitreous quartz of a milk-like color and of somewhat greasy luster; also called Greasy quartz. (Power)

Mill. 1. (Eng.) That part of an iron works where puddle-bars are converted into merchant-iron, *i. e.*, rolled iron ready for sale in bars, rods, or sheets. *See* Forge. 2. By common usage, any establishment for reducing ores by other means than smelting. More strictly, a place or a machine, in which ore or rock is crushed. *See* Machine 4. 3. An excavation made in the country rock, by a cross-cut from the workings on a vein, to obtain waste for filling. It is left without timber so that the roof may fall in and furnish the required rock. (Raymond)
4. A passage connecting a stope or upper level with a level below, intended to be filled with broken ore that can then be drawn out at the bottom as desired for further transportation. An opening in the floor or bottom of a stope through which the ore or mineral is passed or thrown downward along the footwall to

the level. (Lesh v. Tamarack Min. Co., 152 NW. Rept., p. 1022; 1916). 5. To fill a winze, or interior incline, with broken ore, to be drawn out at the bottom. (Webster)

Mill bar. A rough bar rolled or drawn directly from a bloom or puddle-bar for conversion into merchant iron in the mill. (Webster)

Mill car. A flat car on which is mounted a heavy hoisting engine. (Webster)

Mill cinder. The slag from the puddling furnaces of a rolling mill. (Raymond)

Mill coal (Kansas). Same as Dead coal.

Mill dirt (So. Afr.). Free milling ore. (Skinner)

Miller indices. Mathematical symbols for crystal faces. (A. F. Rogers)

Millerite. Nickel sulphide, NiS. Contains 64.1 per cent nickel. (U. S. Geol. Surv.)

Miller process. The separation of gold and silver by conducting chlorine gas into the molten metal. The silver and other base metals are chloridized and come to the top of the bath. (Liddell)

Mill furnace. An iron furnace for reheating iron that is to be re-rolled, or welded, under the hammer. (Standard)

Mill hole. An auxiliary shaft connecting a stope or other excavation with the level below (Ihlseng). *See* Mill, 4.

Milligram. A unit of weight in the metric system, equal to one thousandth part of a gram, 0.05432 grain, 0.000643 pennyweight, 0.00003215 troy ounce, and has a gold value of 0.06645 cent or 0.033 British penny. (Lindgren, p. 20)

Millimeter. A metric measure of length, equal to 0.0394 of an inch. (Webster)

Milling. 1. (Lake Superior District) A combination of open cut and underground mining, wherein the ore is mined in open cut and handled underground. It is underhand stoping applied to large deposits, wherein the ore is mined near the mouth of winzes or raises, and dropped by gravity to working levels below for transportation to the surface. Sometimes called Glory-hole-method (W. R. Crane). *See* Mill, 4 and 5. 2. Dressing ore in a mill. (Weed)

Milling ore. 1. A dry ore that can be amalgamated or treated by leaching and other processes; usually these ores are low-grade, free, or nearly so, from base metals (Morrison). 2. Any ore that contains sufficient valuable minerals to be treated by any milling process.

Millman. One who is employed in a mill, as in an ore-dressing plant.

Millón (Mex.). An ore pile. (Dwight)

Mill pick. A tool for dressing mill stones. (Century)

Mill race. The current of water that drives a mill wheel, or the channel in which it flows from the dam to the mill. (Century)

Mill rolls. The rolls through which puddled iron is run previous to being marketed (Standard). *See* Merchant-train.

Mill run (Pac.). 1. The work of an amalgamating mill between two clean-ups. 2. A test of a given quantity of ore by actual treatment in a mill. (Raymond)

Mill scale. The scale of ferric oxide that peels from iron during rolling. *Compare* Forge scale. (Standard)

Mill site. A plot of ground suitable for the erection of a mill, or reduction works, to be used in connection with mining operations. (U. S. Min. Stat., pp. 595–607)

Millstone. A hard tough stone used for grinding cereals, cement rocks, and other materials. Usually a coarse-grained sandstone or fine quartz-conglomerate. (U. S. Geol. Surv.)

Millstone grit. an old English name for the conglomeratic sandstone at the base of the Carboniferous Coal Measures. It was formerly more or less current in this country as a synonym for Pottsville conglomerate.

Mill tail. The current of water leaving a mill wheel after turning it, or the channel through which it runs; a tailrace. (Century)

Mill test. The determination of the metallic contents and recoverable metal in any given ore by the milling of a sufficient quantity to afford average milling conditions (Weed). *See* Mill run.

Millwright. One whose occupation is to build mills, or to set up their machinery. (Webster)

Mimesite. An obsolete synonym for Dolerite. (Kemp)

Mimetic. Imitative. Applied to crystals which, by twinning, resemble simple forms of a higher grade of symmetry. (Webster)

Mimetite. Lead chlorarsenate, $3Pb_3As_2O_8$. (U. S. Geol. Surv.)

Mimic. In mineralogy, the same as Mimetic.

Mimophyre. A name suggested by Elie de Beaumont in 1814 for metamorphosed, argillaceous rocks in which feldspars had developed, so that they resembled porphyries. Volcanic tuffs are a frequent original, but graywackes and arkoses have also yielded them. *Compare* Porphyroid. (Kemp)

Mina (Sp.). 1. A deposit of mineral. 2. Mine. *M. ahogada* (Colom.) A placer mine which has been covered by a fall of ground or by gravel or tailings from a mine situated above it (Halse). *M. alta*, a high mine; *M. capotera*, a mine with ore at a slight depth; *M. cargada*, mine abounding in stone; *M. cogollera*, a mine rich at outcrop but poor below; *M. de cacho*, an alluvial mine with fine gravel; *M. de cerro*, a mountain mine; *M. de cueva*, mine with pay ore covered by large blocks of rock; *M. de invierno* (Colom.), a mine workable only in the rainy season; *M. de oro corrido*, alluvial mine; *M. de sabana*, a high-lying mine; *M. de saca*, a mine in which pay gravel lies below the level of the adjacent water; *M. de saco*, ore deposits filling superficial cavities; *M. de sobresabana*, a mine lying higher than a 'sabana'; *M. de tonga*, a self-draining mine; *M. de tope*, a mine in which ore is abundant in small places, the adjacent places being barren; *M. de verano* (Colom.) a mine workable only in the dry season; *M. de veta*, a lode mine; *M. en frutos*, a productive mine; *M. hervida*, an alluvial mine in which gold-bearing gravel was deposited by a whirlpool; *M. jornalera*, a poorly-paying mine; *M. matera*, a mine in which ore is abundant in small places, the adjacent places being barren. (Lucas)

Minable. That can be mined. (Standard)

Minado (Sp.). Underground workings. (Halse)

Minar (Sp.). To mine. (Halse)

Minargent. An alloy of copper, nickel, and antimony, with a slight proportion of aluminum. (Standard)

Mine. 1. In general, any excavation for minerals. More strictly, subterranean workings, as distinguished from quarries, placers, and hydraulic mines, and surface or open works. The distinction between the French terms *mine* and *minière* results entirely from the law, and depends upon the depth of the working. The former is the more general term, and, ordinarily speaking, includes the latter, which signifies shallow or surface workings (Raymond). *Compare* Quarry. NOTE: The word "mine" in statutes prescribing safety appliances and protection for the miner, has generally been held as including not only a place where pay ore has been discovered, but one where an excavation alone exists, as a cross-measures heading, an incline communicating with two or more seams or veins, or a trial heading, drift, adit, or shaft, etc., to prove the existence of minerals; in fact, any excavation for the development of a mineral deposit, or for the extraction of the ore, rock or coal therefrom. In a military sense, a mine is a subterranean gallery run under an enemy's works, to be subsequently exploded.

2. Any deposit of mineral or ore suitable for extraction, as an ore deposit. The Federal and State courts have held that the word "mine", in statutes reserving mineral lands, included only those containing "valuable mineral deposits". In England the term mine is applied to any seam of coal, as well as to a deposit of ironstone either in thin bands, or in one bed of considerable thickness.

3. The terms "mine" and "coal mine" are intended to signify any and all parts of the property of a mining plant, either on the surface or underground, that contribute directly or indirectly to the mining or handling of coal. (Hakanson *v.* La Salle County Carbon Coal Co., 106 N. E. Rept., p. 618; Spring Valley Coal Co. *v.* Greig, 129 Illinois App., p. 391; 226 Illinois, p. 511; Moore *v.* Dering, 242 Illinois, p. 87)

4. The term "mine," as used by quarrymen, is applied to underground workings having a roof of undisturbed rock. It is used in contrast with the "open-pit" quarry. (Bowles)

5. To dig a mine; to get ore, metal, coal, or precious stones out of the

earth; to dig in the earth for minerals; to work in a mine. (Webster)
6. *Discovery of a mine*: In statutes relating to mines the word "discovery" is used, (1) in the sense of uncovering or disclosing to view ore or mineral; (2) of finding out or bringing to the knowledge the existence of ore or mineral, or other useful products which were unknown, and (3) of exploration, that is, the more exact blocking out or ascertainment of a deposit that has already been discovered. In this sense it is practically synoymous with Development, and has been so used in the U. S. Revenue Act of February 9, 1919 (Sec. 214, subdivision A 10, and Sec. 234 subdivision A 9) in allowing depletion to mines, oil and gas wells.
Article 219 of "Income and War Excess Profits Tax Regulations" No. 45, construes "discovery of a mine" as, (1), the bona fide discovery of a commercially valuable deposit of ore or mineral, of a value materially in excess of the cost of discovery in natural exposure or by drilling or other exploration conducted above or below the ground; (2) the development and proving a mineral or ore deposit which has been apparently worked out * * * to be a minable deposit of ore or mineral having a value materially in excess of the cost of improving or development.

Mine captain. The director of work in a mine, with or without superior officials. and with or without subordinates. (Webster)

Mine dial. *See* Miner's dial.

Mine dust. 1. (Scot.) The riddlings of calcined ironstone. (Barrowman) 2. *See* Coal dust. 3. Dust from rock drills, blasting, or handling rock.

Mine earth (No. Staff.). Synonymous with Ironstone in beds. (Gresley)

Mine ground (Eng.). Strata containing ironstone in layers. (Gresley)

Mine locomotive. A low, heavy, haulage engine, designed for underground operation; usually propelled by electricity, gasoline, or compressed air.

Mine measures (Forest of Dean). *See* Mine ground.

Mine pig (Eng.). Pig-iron made wholly from ore, in distinction from cinder pig. (Webster)

Miner. 1. One who mines; one engaged in the business of getting ore, coal, or precious stones out of the earth; broadly, any one working underground in a mine; more narrowly, one who drills, blasts, stopes, drives levels, etc., in a mine. (Webster)
2. A worker in a coal mine who is paid a certain price for each ton of coal he digs or blasts from the solid seam, as distinguished from the laborer who loads the cars, etc. His *helpers* load the coal; they are also called Laborers. (Steel)
3. Includes all classes and laborers who work in a mine whether digging coal, timbering, or making places safe. (Driza *v.* Jones & Adams Co. 171 Illinois App., p. 145)

Mineral. 1. A mineral is a body produced by the processes of inorganic nature, having a definite chemical composition and, if formed under favorable conditions, a certain characteristic molecular structure, is exhibited in its crystalline form and other physical properties. A mineral must be a homogeneous substance, even when minutely examined by the microscope; further, it must have a definite chemical composition, capable of being expressed by a chemical formula. (Dana)
2. As used in flotation the terms 'mineral' or 'metallic' particles hark back to the French (*minéral*, ore) and Spanish (*metal*, ore) meanings. Both terms refer to those valuable constituents in the ore that it is the object of the process to separate from the non-valuable constituents, or gangue. (Rickard)
3. (Lake Superior) Concentrates containing about 65 per cent metallic copper. The crude ore is called *rock*.
4. In miner's parlance, ore (Hanks). *Compare* Ore.
5. The term mineral, when employed in a conveyance, is understood to include every inorganic substance that can be extracted from the earth for profit whether it be solid, as rock, fire clay, the various metals and coal, or fluid, as mineral waters, petroleum, and gas. (Horace Creek Land and Min. Co. *v.* Midkiff (W. Va.), 95 S. E. Rept., p. 27)

Mineral (Sp.). 1. Mineral or ore; *M. de bolsadas*, spotty or bunchy ore; *M. de crestón*, outcrop ore; *M. desmenuzable*, earthy ore, friable ore; *M. en roca*, rocky ore; *M. pobre*, low-grade ore, leavings; *M. rico*, high-grade ore; *M. tostado*, roasted ore. (Halse)

2. (Mex.) A mining district; also a mine. (Lucas)

Mineral adipocire. *See* Hatchettite.

Mineral belt. The strip, or zone, of mineralized territory in a given formation or district. (Weed)

Mineral blossom. Drusy quartz. (Power)

Mineral blue (Eng.). Azurite when reduced to an impalpable powder for use as a pigment.

Mineral borer (Scot.). A person whose business it is to search for minerals by boring. (Barrowman)

Mineral caoutchouc. *See* Elaterite, Helenite, and Caoutchouc.

Mineral charcoal. A pulverulent, lusterless substance, showing distinct vegetal structure, and containing a high percentage of carbon with little hydrogen and oxygen, occurring in thin layers in bituminous coal. (Raymond) Called by miners Mother of coal.

Mineral coal. A name for native coal, to distinguish it from charcoal. (Chester)

Mineral cotton. *See* Mineral wool.

Mineral deposit. Any valuable mass of ore. Like ore deposit, it may be used with reference to any mode of occurrence of ore, whether having the characters of a true, segregated, or gash vein, or any other form. *See* Ore deposit. (Century)

Mineral dresser. A machine for trimming or dressing mineralogical specimens. (Standard)

Mineral field (Scot.). A tract of country in which workable minerals are found; a mineral leasehold. (Barrowman)

Mineralization. 1. The process of replacing the organic constituents of a body by inorganic fossilization. 2. The addition of inorganic substances to a body. (Standard)
3. The act or process of mineralizing. *See* Mineralize (Webster). The process of converting or being converted into a mineral, as a metal into an oxide, sulphide, etc.

Mineralize. 1. To change from a metal into a mineral; as, iron when exposed to the air is *mineralized* into rust. (Standard)
2. To petrify. 3. To impregnate or supply with minerals. 4. To promote the formation of minerals, as heat is a mineralizing agent. 5. To go on an excursion for observing and collecting minerals. (Webster)

Mineralized matter. Crushed and loose rock material containing minerals irregularly deposited, from solution. It may be in beds, or in fissues. (Eureka Consol. Mining Co. *v.* Richmond Mining Co., 4 Sawyer, 312; Doe *v.* Waterloo Mining Co., 54 Fed. Rept., p. 943)

Mineralized zone. A mineral-bearing belt or area extending across or through a district. It is usually distinguished from a vein or lode as being wide, the mineralization extending in some cases hundreds of feet from a fissure of contact plane. *Compare* Contact deposit. *See* Zone, 2.

Mineralizers. The dissolved vapors in an igneous magma, such as steam, hydrofluoric acid, boracic acid, and others, that exert a powerful influence in the development of some minerals and textures. The word is also technically used in some definitions of ore. Thus it is said that an ore is a compound of a metal and a mineralizer, such as copper and sulphur, iron and oxygen, etc. (Kemp)

Mineral jelly. Vaseline. (Webster)

Mineral kingdom. One of the prime divisions of nature, embracing all minerals. (Standard)

Mineral lake. Tin-chromate glass, forming a pink pigment. (Standard)

Mineral land. Land more valuable for its deposits of stone, or whatever is recognized as mineral, than for agriculture. (McGlenn *v.* Wienbrocer, 15 Land Decisions, p. 375; Berry *v.* Central Pacific R. R. Co., 15 Land Decisions, p. 464; United States *v.* Iron Silver Min. Co., 128 United States, p. 673)

Mineral line. A railroad that carries only mineral. (Webster)

Mineral monument. A permanent monument established in a mining district to provide for an accurate description of mining claims and their location. (U. S. Min. Stat., pp. 227–231)

Mineralogist. One who is versed in the science of minerals, or one who treats or discourses of the properties of mineral bodies. (Century)

Mineralogize. To study and collect minerals, usually by outdoor practice. (Standard)

Mineralography. The study of the structure of minerals by the application of metallographic methods to polished sections of minerals. The microscope and reflected light thus bring out structures which could not otherwise be determined. (Eng. and Min. Jour., vol. 105, p. 934)

Mineralogy. That science which treats of those inorganic species called minerals, which together in rock masses, or in isolated form, make up the material of the crust of the earth. (Dana)

Mineral oil; naphtha. A limpid or yellowish liquid, lighter than water, and consisting of hydrocarbons. Petroleum is heavier than naphtha, and dark greenish in color when crude. Both exude from the rocks; but naphtha can be distilled from petroleum (Raymond). *See also* Petroleum.

Mineral paint. Minerals used as pigment, including the ochers, iron oxides, barite, etc. *See also* Ocher; Sienna; Umber. (U. S. Geol. Surv.)

Mineral pitch. Asphaltum.

Mineral purple. An iron-oxide red pigment. (Standard)

Mineral resin. Any one of certain mineral hydrocarbons, as asphalt and bitumen. (Standard)

Mineral right. The ownership of the minerals under a given surface, with the right to enter thereon, mine, and remove them. It may be separated from the surface ownership, but, if not so separated by distinct conveyance, the latter includes it. (Raymond)

Mineral seal oil. A trade term for an oil of the gravity 38.5° to 39° Bé., adapted for lighthouse and locomotive lights. It has a fire test of 300° F., a flash point of 255° F., and a viscosity of 45 to 50 at 100° F. on the Saybolt universal instrument. (Bacon)

Mineral sperm oil. *See* Mineral seal oil.

Minerals separation process. A flotation process based on surface-tension phenomena, accelerated by means of addition to the pulp of small quantities of oil and air in minute subdivision. There is only about 0.1 per cent oil added, and the pulp violently agitated for from 1 to 10 minutes. Innumerable small bubbles of air are thus mechanically introduced, which join the oil-coated particles. These are then removed in a spitzkasten. Exposure to the air after this treatment then aerates any mineral which has not already taken up its oil film, after which a second spitzkasten treatment removes this. (Liddell)

Mineral surveyor. *See* Deputy surveyor.

Mineral synthesis. The production of artificial minerals by a laboratory process.

Mineral tallow. Hatchettite. (Standard)

Mineral tar. 1. A viscid variety of petroleum. (Power)
2. Tar derived from various bituminous minerals, as coal, shale, peat, etc. Shale tar. (Standard)

Mineral time (Eng.). An eight-hour period in Derbyshire and in some other districts. (Hunt)

Mineral turpentine. *See* Turpentine substitutes.

Mineral vein. A vein formed by aqueous deposition, or by sublimation. A vein containing ore (Webster). *See also* Fissure; Lode; Vein.

Mineral water. A natural water coming from a spring and containing some characteristic mineral ingredient, as carbon dioxide or a lithium salt. (Standard)

Mineral wax. *See* Ozocerite.

Mineral way (Derb.). The roadway over which the miner transports ore to the highway, or supplies from the highway to the mine. (Mander)

Mineral white. Permanent white. Gypsum ground and used as a pigment. (Webster)

Mineral wool. A substance outwardly resembling wool, presenting a mass of fine interlaced filaments, made by subjecting furnace slag (or certain rocks) while molten to a strong blast. Being both insect-proof and fire-proof, it forms a desirable packing for walls, a covering for steam boilers, etc. (Standard). *Compare* Glass wool. Called also Mineral cotton; Silicate cotton; Slag wool.

Mineral yellow. A yellow pigment consisting of an oxychloride of lead; patent yellow. (Webster)

Minerar (Port.). To mine. (Halse)

Mine rent. The rent or royalty paid to the owner of a mineral right by the operator of the mine—usually dependent, above a fixed minimum, upon the quantity of product. (Raymond)

Mine rescue-apparatus. A name applied to certain types of apparatus worn by men, and permitting them to do work in noxious or irrespirable atmospheres such as obtain during mine fires, following mine explosions, as a result of accidents in ammonia plants, from smelter fumes, etc. Oxygen compressed in cylinders, a regenerating substance to purify the breathed air, with a closed circulation system constitute the general principle of the apparatus.

Mine rescue-car. One of a number of railway cars specially equipped with mine rescue-apparatus, safety lamps, first-aid supplies, and other materials, maintained by the U. S. Bureau of Mines in various sections of the United States. These cars serve: as movable stations for the training of miners in the use of mine rescue-apparatus, and in first-aid to the injured; as centers for the promotion of mine safety; as emergency stations for assisting at mine fires, explosions, or other disasters. Similar cars are maintained by a number of mining companies.

Mine rescue-crew. A crew consisting usually of five men who are thoroughly trained in the use of mine rescue-apparatus, and are capable of wearing it in rescue or recovery work in a mine following an explosion, or to combat a mine fire.

Mine rescue-lamp. A name given to a particular type of electric safety hand-lamp used in rescue operations. It is equipped with a lens for concentrating or diffusing the light beam as occasion may require.

Minería (Sp.). Mining. This term embraces the whole subject, including both mines and miners, and also the operations of working mines and of reducing their ores. It, however, is often used in a more restricted sense. (Raymond)

Minería, diputación de (Sp.). A tribunal cognizant of mining matters, elected in most cases by the mine owners of the district. (Min. Jour.)

Minerio (Port.). Ore. (Halse)

Minero (Sp.). Miner. This term is not limited to those who work mines, but includes their owners, and all who have the qualifications prescribed in the ordinances, and are enrolled as members of the body or craft. Many of the laborers who work in mines are not, technically speaking, miners. This term is sometimes used in the old laws for mine. (Raymond)

Mine road. Any mine track used for general haulage. (Chance)

Mine rock. A more or less altered rock found in ore channels (Power). Gangue.

Mine royal (Derb.). A gold or silver mine that belongs to the king, by his prerogative to make (coin) money. (Mander)

Miners' anemia. *See* Ankylostomiasis.

Miners' Asthma. *See* Pneumonoconiosis.

Miners' bar. An iron bar pointed at one end, chisel-edged at the other, used in coal mining. (Standard)

Miners' box. A wood or iron box located in or near the working place of the miner in which he keeps his tools, supplies, etc. Required by law in some States.

Miners' coal-ton. In Wales, 21 cwts. of 120 pounds each. (Gresley)

Miners' dial. An instrument used in surveying underground workings. (C. and M. M. P.)

Miners' elbow. A swelling on the back of the elbow due to inflammation of the bursa over the olecranon, so called because often seen in miners. (Webster)

Miners' friend. (Canterbury) The Davy safety lamp. (Webster)

Miners' hammer. A hammer for breaking ore. (Standard)

Miners' inch. The miner's inch of water does not represent a fixed and definite quantity, being measured generally by the arbitrary standard of the various ditch companies. Generally, however, it is accepted to mean the quantity of water that will escape from an aperture one inch square through a two-inch plank, with a steady flow of water standing six inches above the top of the escape aperture, the quantity so discharged amounting to 2274 cubic feet in twenty-four hours (Hanks). Inasmuch as the miner's inch is a local term "The flow of the water shall be expressed in cubic feet per second, and where it is desirable, for local reasons, to use the term 'miner's inch' it shall represent a flow of 1½ cubic feet per minute.", (W. H. Shockley, Bull. 92, Min. and Met. Soc. of Am., Jan. 1916, p. 32). *Compare* Sluice head.

Miners' lamp. Any one of a variety of lamps used by a miner to furnish light; as, oil lamps, carbide lamps, flame safety lamps, electric cap-lamps, etc.

Miners' lung, Miners' asthma. *See* Pneumonoconiosis.

Miners' needle. A long, slender, tapering, metal rod left in a hole when tamping and afterwards withdrawn, to provide a passage, to the blasting charge, for the squib.

Miners' nystagmus. Nystagmus occurring among miners due to strain on the eyes from working by insufficient light. This subject is discussed in detail in Bull. 93, U. S. Bur, Mines, by F. L. Hoffman.

Miners' oil. An oil, producing little smoke, used in miner's wick-fed open lamps.

Miners' phthisis. *See* Anthracosis.

Miners' right. 1. An annual permit from the Government to occupy and work mineral land. C. and M. M. P) 2. In California, the right of a miner to dig for precious metals on public lands occupied by another for agricultural purposes; in Australia, a written or printed license to dig for gold. (Standard)

Miners' rules. Rules and regulations proclaimed by the miners of any district relating to the location, recording and the work necessary to hold possession of a mining claim. It was the miners' rules of the early days of the mining industry that were the basis of the present laws. (U. S. Min. Stat., pp. 192–195). The local mining laws and regulations of 1849 and later are given in Vol. 14, 10th Census of the United States, 1880, compiled by Clarence King.

Miners' sunshine. A soft grade of paraffin wax used by miners for burning in lamps. *See* Sunshine.

Miners' wax. A refined paraffin wax with a melting point of 118° to 120° F. (Bacon). *Compare* Sunshine.

Miners' wedge. A metallic wedge or plug for splitting off masses of coal. (Standard)

Miners' weight (Penn.). A term used in an old coal mining lease as the basis for a price per ton to be paid for mining. It is variable, but consists of such quantity of mine-run material as operator and miner may agree upon as necessary or sufficient to produce one ton of prepared coal. (Drake *v.* Berry, 102 Atlantic, p. 320)

Miners' worm. The hookworm, *agchylostoma duodenale,* which often infests miners and tunnel workers (Webster). *See* Ankylostomiasis.

Mine run. The entire unscreened output of a mine (C. and M. M. P.). Also called Run of mine.

Minery. Mines collectively; a mining district or its belongings; a quarry. (Century)

Mine safety-car. Same as Mine rescue-car.

Mine salting. *See* Salt, 3.

Mineta. 1. (Peru) Small mine-chamber or cavity. (Dwight)
2. Rock composed chiefly of feldspar and biotite mica, sometimes with chlorite, quartz, and hornblende. A mica syenite. (Halse)

Mine tin. Tin obtained from veins or lodes, as distinguished from stream tin. (Ure)

Minette. A variety of mica-syenite, usually dark and fine grained, occurring in dikes. (Kemp)

Mine work. (Eng.) An ironstone mine or workings. (Gresley)

Minge; Mingy coal. Coal of a tender or friable nature. (Gresley)

Mingles (Scot.). The vertical timbers of the upper part of a pulley frame, on the top of which the pulleys are fixed (Gresley). *See* Maidens.

Mining. 1. Act or business of making mines or working them (Webster). The processes by which useful minerals are obtained from the earth's crust, including not only underground excavations but also open workings; it also includes both underground and surface deposits. (Burdick *v.* Dillon, 144 Fed. Rept., p. 739)
2. (Ark.) The excavation made in undermining a coal face. 3. (Ark.) A soft band of dirt in, or beneath, a coal seam in which a preliminary excavation can be readily made. (Steel). *See also* Mining ply.
4. Reduction of ore, whether mined or purchased, and refining the products thereof, is mining, within the statute permitting the cutting of timber for mining purposes. (United States *v.* Richmond Mining Co., 40 Fed. Rept., 415)

Mining advancing. A method of mining by which the ore or coal is mined as the excavation advances from the shaft or main opening. *Compare* Mining retreating.

Mining camp. 1. A colony of miners settled temporarily near a mine. (Standard)
2. A term loosely applied to any mining town.

Mining case. A frame of a shaft, or gallery, composed of four pieces of plank. (Standard)

Mining claim. 1. That portion of the public mineral lands which a miner, for mining purposes, takes and holds in accordance with mining laws. (Escott *v.* Crescent Coal & Navigation Co., 56 Oregon, p. 192; 106 Pacific, 452; Mt. Diablo M. & M. Co. *v.* Callison, 4 Sawyer, p. 439; Morse *v.* De Ardo, 106 California, p. 622; Salisbury *v.* Lane, 7 Idaho, p. 370; Bewick *v.* Muir, 83 California, p. 363; Berentz *v.* Beltmont Oil Co. 148 California, p. 577; Black *v.* Elkhorn Mining Co., 49 Fed. Rept. 549, p. 553)
2. A mining claim is a parcel of land containing precious metal in the soil or rock. A *location* is the act of appropriating such parcel of land according to law or to certain established rules (Smelting Co. *v.* Kemp 104, United States, p. 649; Peabody Gold Mining Co. *v.* Gold Hill Mining Co. 97 Fed. Rept. p. 661; McFeters *v.* Pierson, 15 Colorado, p. 203; 24 Pacific, 1076, 1890). *See* Claim; Lode mining claim; Placer claim; Location, 3. (U. S. Min. Stat., p. 51)

Mining débris. The tailings from hydraulic mines. Also called Débris. (Century)

Mining district. A settlement of miners organized after the plan that, in the first years of mining in the Western part of the United States, the miners, in the independence of all other authority, devised for their own self-government (Century). A section of country usually designated by name and described or understood as being confined within certain natural boundaries, in which gold or silver (or other minerals) may be found in paying quantities. (United States *v.* Smith, 11 Fed. Rept., p. 490)

Mining easement. *See* Easement.

Mining engine. 1. *See* Man machine.
2. Any engine used in mining, as a pump engine or mine locomotive. (Standard)

Mining engineer. One versed in, or one who follows, as a calling or profession, the business of mining engineering. Graduates of technical mining schools are given the degree of 'engineer of mines' and authority to sign the letters E. M., after their names. The letters 'M. E.' stand for mechanical engineer, when given by a school, but are often used by men engaged in mining, who lack scholastic degrees, as an abbreviation for mining engineer, or mining expert.

Mining engineering. That branch of engineering dealing with the excavation and working of mines. (Webster) It includes much of civil, mechanical, electrical, and metallurgical engineering.

Mining geology. *See* Geology.

Mining machine. A coal-cutting machine. (Standard)

Mining ore from top down. *See* Top-slicing and cover-caving.

Mining partnership. 1. A partnership in mining business in which one partner may sell his partnership interest, and bring his purchaser into the partnership without making a dissolution. (Standard)
2. Under the Civil Code of California (Section 2511), a mining partnership exists when two or more persons acquire a mining claim and actually engage in working the same. The actual working of the mine by the joint owners is essential to a mining partnership. (Peterson *v.* Beggs, 148 Pacific, p. 542)

Mining ply. A soft, thin, interstratified portion of a coal bed. In the Pittsburgh seam of western Maryland it is 3 to 6 inches thick, and it is in this that the machine does the undercutting. (Md. Geol. Surv., vol. 5, p. 540). *See* Mining, 5.

Mining retreating. A process of mining by which the ore, or coal, is untouched until after all the gangways, etc., are driven, when the work of extraction begins at the boundary and progresses toward the shaft. (Steel)

Mining under. The act of digging under coal or in a soft strata in coal seams. (Daddow)

Minio (Sp.). Red lead. (Min. Jour.)

Minion. The siftings of iron ore after calcination. (Standard)

Ministerio (Sp.). Ministry; *M. de hacienda*, Ministry of the Exchequer or Treasury; *M. de fomento*, Ministry of Public Works and Instruction. In Spanish America, the Ministry of Encouragement and Promotion. (Halse)

Minium. Red oxide of lead, $2PbO.PbO_2$ Contains 90.6 per cent lead. (U. S Geol. Surv.)

Miñón (Sp.). 1. An iron slag. 2. An earthy iron ore. (Halse)

Minophyric. Minutely porphyritic rocks with phenocrysts whose longest diameters are between 1 mm. and 0.2 mm. *See* Magnophyric and Mediophyric. (Iddings, Igneous Rocks, p. 200)

Minseed oil. A bloomless petroleum product, used in connection with linseed oil for cheapening purposes. *See* Paint oil. (Bacon)

Minus sight. *See* Foresight, 1.

Miny. Pertaining to, or like a mine. (Webster)

Miocene. The third of the four epochs into which the Tertiary period is divided. Also the series of strata deposited during that epoch. (La Forge)

Mirabilite; Glauber's salt. Hydrous sodium sulphate, $Na_2So_4+10H_2O$. (U. S. Geol. Surv.)

Mirror black. Having a lustrous black gloss; said of pottery. (Standard)

Mirror plate. Plate glass suitable for mirrors. (Standard)

Mirror Stone. Muscovite.

Mischio marble. A violet-red breccia from Serravezza, in Italy; also known as African breccia (*Breche africaine*). (Merrill)

Misenite. Probably acid-potassium sulphate, $HKSO_4$. In silky fibers of a white color. (Dana)

Miser. A tubular well-boring bit having a valve at the bottom, and a screw for forcing the earth upward (Standard). Also spelled Mizer.

Misfire. The failure of a blasting charge to explode when expected. In electric firing, usually due to broken circuit or insufficient current. If the electric blasting-cap fires without exploding the charge, it is usually due to misplaced detonator or the charge has been affected by storage in a wet place. Misfires with fuse and blasting-caps are generally due to the fuse going out or to the failure of the fuse to ignite the blasting-cap. Failure of the blasting-cap to detonate the dynamite, when it is fired, is usually due to its having been affected by dampness. (Du Pont)

Misfire hole; Missed hole. A drill hole containing an explosive charge that has failed to explode. (Peterson *v.* Otho Development & Power Co. 166 N. W. Rept., p. 147)

Mispickel. A sulpharsenide of iron, FeS_2FeAs_2 (Dana). Arsenopyrite.

Mission tile. A name sometimes applied to roofing tile of semicircular cross section. (Ries)

Mississippian. The first of the three epochs into which the Carboniferous period is ordinarily divided; regarded by many geologists as itself a peroid. Also the series of strata during that epoch. (La Forge)

Missourite. A granular igneous rock consisting of leucite, biotite, augite, olivine, iron ores and apatite, and corresponding to the effusive leucite-basalts. It was discovered in the Highwood Mountains, Mont., by Weed and Pirsson, and named by them from the Missouri River, the most prominent and best known geographical object in the region. (Kemp)

Mistress. 1. (Scot.) A water-proof cover for miners when sinking in a wet shaft. (Barrowman)
2. (No. of Eng.) A wooden or tin box, having the front open, in which a candle is carried in a pit. (Gresley)

Misy (Egypt). A synonym for Copiapite.

Mita. 1. (South America) Under Spanish rule, 1548 to 1729, compulsory mining work done by Indians. The Indians were drawn by lot one in seven being taken for work in the mines. 2. (Peru) Tribute paid by Indians. (Halse)

Mitayo. 1. (Sp. Am.) Under the Spanish rule, 1548 to 1729, an Indian chosen by lot to serve his term of compulsory labor in mines. 2. (Peru) An Indian who collects tribute. (Halse)

Mitchell slicing system. *See* Sublevel stoping.

Miter cut. In glass making, an angular groove, as in plate glass, having a bottom angle of approximately 90° (Standard)

Mitered tile. Roofing tile cut off obliquely, so as to fit in upright work, such as dormer corners. It also includes pieces flanged at right angles so as to cover such corners. (Ries)

Miter iron. A fagot of round iron bars arranged about a central circular bar, ready for forging. (Standad)

Mitis casting. 1. The process of making castings of wrought iron, the melting point of which has been lowered by a slight addition of aluminum. 2. A casting made by this process. (Standard)

Miuçalheiros (Braz.). Trammers, shovelers, and helpers. (Halse)

Mixta (Mex.). Alloy of gold and silver. (Dwight)

Mixture. A commingling in which the ingredients retain their individual properties or separate chemical nature: if chemically combined it is a *compound*. *See* Mechanical mixture. (Standard)

Mizer. The chief tool used in certain systems of sinking the cylinders of small shafts through water-bearing strata, to remove the ground from beneath them (Gresley). *See* Miser.

Moat. 1. A ditch or deep trench. To surround with a ditch. (Century) 2. (Scot.) To puddle; to cover up the mouth of a pit or other opening so as to exclude air in the event of an underground fire. (Barrowman)

Moating. Clay backing for a masonry shaft sunk through quicksand. (Webster)

Mobby (So. Staff.). A leathern girdle, with a small chain attached, used by the boys who draw bowks (buckets or tubs). (Raymond)

Mocha pebble. Same as Moss agate. Called also Mocha stone. (Standard)

Mocha stone. A white variety of quartz banded with various colors, and used as gem (Standard). *See* Moss agate.

Mock lead. A Cornish term for zinc blende; also called Wild lead. (Davies)

Mock ore. Same as Sphalerite. (Standard)

Mock platinum. An alloy of 8 parts of common brass and 5 of zinc. (Standard)

Mock silver. A white alloy of copper, tin, nickel, zinc, etc., of the same class as Britannia metal; pewter. (Standard)

Mock vermilion. A basic chromate of lead. (Webster)

Moco. 1. (Sp.) Scoria of iron. 2. *M. de hierro* (Venez.), brown iron ore; a highly ferruginous rock. (Halse)

Mode. The actual mineral composition of an unaltered igneous rock: contrasted with Norm, *which see*. (La Forge)

Modeling clay. Fine, plastic clay, especially prepared for artists in modeling by kneading with glycerin, or by other methods. (Century)

Modified room-and-pillar working. *See* Bord-and-pillar method.

Modulus of elasticity. A number determining the extension or change of form (strain) of a body under the influence of a stretching or distorting force (stress), and, in the case of a body whose dimensions are all unity, equal to the ratio of the strain to the stress. (Standard)

Modulus of rupture. The measure of the force which must be applied longitudinally in order to produce rupture. (Webster)

Moebius process. A method of electrolytic refining of silver. Silver plate of 95 to 98 per cent pure forms the anodes, and thin silver plate forms the cathodes. The electrolyte consists of a weak acidulated solution of silver nitrate. (Goesel)

Mofeta (Sp.). Gas found in mines; afterdamp. (Halse)

Mofette. An emanation from the earth of noxious gas, chiefly carbon dioxide, marking the last stage of volcanic activity; also, the opening from which the gas issues. *See also* Fumarole, Solfatarra, and Soffioni. (Webster)

Mogrollo (Mex.). Silver ores, composed of sulphides. (Halse)

Mohr's salt. Ferrous-ammonium sulphate, $Fe(NH_4)_2(SO_4)_2.6H_2O$. A light green crystalline salt. (Webster)

Mohsite. Native titanic iron; ilmenite. (Century)

Moil. 1. A short length of steel rod tapered to a point, used for cutting hitches, etc. (Ihlseng)
2. A long gad used for accurate cutting in a mine; a set. 3. In glass

blowing, metallic oxide adhering to glass when it is detached from the end of the blowpipe. (Standard)

Moiré métallique (Fr.). Tin-plate, or iron plate that has been first coated with tin, so treated by acids as to give it a clouded, variegated or variously crystallized surface. (Century)

Moissan process. A process for the reduction of chromic oxide with carbon in an electric furnace, the hearth of which is lined with a calcium chromite prepared by heating together lime and chromic oxide. (Goesel)

Mojón; Mojonera (Mex.). Stone pillar to mark corner of a claim. Any boundary mark. (Dwight)

Mojona (Sp.). A survey of land; the placing of landmarks. (Halse)

Mold; Mould. 1. An impression made in the earth by the outside of a fossil shell, or other organic form; sometimes misused for cast. 2. The matrix or cavity in which anything is shaped and from which it takes its form; also the body or mass containing the cavity, as a sand mold for casting metal. (Webster)
3. The form into which fused metal is run to obtain a cast. 4. The plaster forms used in making terra-cotta architectural ornaments. (Century)

Moldavite; Moldauite. A transparent, green, vitreous stone or natural glass, regarded by some petrologists as of meteoric origin and by others as a form of obsidian. (La Forge) *See also* Bouteillenstein.

Mold board. A board on which to ram a pattern; a follow board. (Standard)

Mold box. A box in which molten steel is hydraulically compressed. (Standard)

Molde (Mex.). Mold. (Dwight)

Molded brick. A term sometimes used for soft-mud brick. (Ries)

Molded coal. An artificial fuel made of charcoal refuse and coal tar, molded into cylinders, dried, and carbonized. (Century)

Molder; Moulder. 1. One who makes molds for castings. 2. One who molds tempered clay into unburned bricks. (Standard)

Mold facing. A fine powder or wash applied to the face of a mold to insure a smooth casting. (Standard)

Molding crane. A crane adapted for use in a foundry in handling molds and flasks. (Century)

Molding frame. A template to shape a loam mold. (Standard)

Molding hole. An excavation in a foundry floor for large castings. (Standard)

Molding loam. A mixture of clay and sand employed by founders in constructing molds. (Century)

Molding machine. A machine for making (*a*) loam molds in flasks, from small complete patterns, or (*b*) gear-wheels and other large symmetrical objects by a radial frame bearing a template, or pattern of a small section of the gear; a gear-molding machine. (Standard)

Molding sand. A mixture of sand and loam used by founders in making sand molds. (Standard)

Molding table. Potter's table for shaping their ware. (Standard)

Mole (Colom.). 1. Galena. 2. Sulphides or concentrates consisting principally of galena. (Halse)

Molecule. The smallest part of a substance that can exist separately and still retain its composition and characteristic properties; the smallest combination of atoms that will form a given chemical compound. (Rickard)

Moledor (Peru). A man in charge of grinding operations. (Halse)

Moledora (Peru). Upper millstone. (Dwight)

Moler (Sp.). To grind or crush ore; *M. en seco* (Peru), dry grinding; *M. por sutil* (Peru), wet grinding. (Dwight)

Molienda. 1. (Mex.) Charge of ore to be ground and amalgamated (Dwight). 2. Grinding or crushing ores. (Halse)

Molinete. 1. (Colom.) A kind of windlass; a winch. 2. The beater used on a dolly tub. (Halse)

Molino. 1. (Mex.) An ore-grinding mill; *M. chileno*, Chilian mill; *M. de muestra*, sample grinder. (Dwight)
2. Ore sent to the mill. 3. (Colom.) A buddle. 4. Alluvial sands accumulated in the ground sluices. (Halse)

Molluskite. The dark-colored carbonaceous matter sometimes found in shell marbles due to the petrifaction of organic portions of mollusks. (Standard)

Molly Maguire. A member of a secret association of Irishmen organized in the Anthracite coal region of Pennsylvania about 1854, for the purpose of intimidating employees and officers of the law and for avenging themselves, by murder, on persons obnoxious to them. The society was broken up after the execution of a number of the members following serious and extensive rioting, in 1877. (Webster)

Molonque (Mex.). Rich specimen, of which one-half, or more, is silver. (Dwight)

Molten. Reduced to the fluid state by heat; melted; fused; as, *molten* metal. (Standard)

Molybdenite. Sulphide of molybdenum, MoS_2. Contains 60 per cent molybdenum. (U. S. Geol. Surv.)

Molybdenum. A metallic element of the chromium group, resembling iron in its white color, malleability, difficult fusibility and its capacity for forming steel-like alloys with carbon. Symbol, Mo; atomic weight, 96.0; specific gravity, 9.01. (Webster)

Molybdic ocher. Same as Molybdite.

Molybdite. Molybdenum trioxide, MoO_3, in capillary tufted forms and earthy. Color straw-yellow. (Dana)

Molybdocolic. Lead colic. (Century)

Molybdomancy. Divination by means of molten lead, the diviner basing his conclusions on the number, form, and motions of the drops that float on the surface. (Standard)

Molybdonosus. Lead poisoning. (Standard)

Molybdoparesis. Lead palsey; painters' paralysis. (Standard)

Molysite. An incrustation, brownish-red, light or dark, and yellow, ferric chloride, $FeCl_3$, found usually in the vicinity of volcanoes as a deposit on lavas, etc. (Dana)

Momme. A Japanese weight equal to 3.75 grams, or 2.4112 pennyweights. (Weed)

Monadnock. A residual rock, hill, or mountain standing above a peneplain. (La Forge)

Monazite. Phosphate of the cerium metals (cerium, didymium, lanthanum) and other rare-earth metals, including thorium, which alone gives it commercial value. Some varieties carry no thorium, but others carry as much as 18 per cent thorium oxide. (U. S. Geol. Surv.)

Monchiquite. An aphanitic or felsophyric igneous rock containing augite and barkevikite, with or without biotite, olivine, and analcite, in a groundmass of analcitic glass. (La Forge) The name was suggested by Rosenbusch from the Monchique Mountains of Portugal for basaltic dikes corresponding in mineralogy and texture to limburgite. They often accompany nephelite-syenite. In modification of the original view that the monchiquites have a glassy groundmass, L. V. Pirsson has urged with much reason, and with the additional evidence of chemical analysis, that the supposed glass is analcite. The presence of so much glass in so basic a rock is improbable. (Kemp)

Mondar (Sp.). To sort hand-picked ore. (Halse)

Mondeo (Braz.). 1. A large masonry reservoir for collecting gold-bearing sand. 2. A settling pit. (Halse)

Mond gas. A variety of semiwater gas, having typically a calorific value of about 145 B. t. u. per cubic foot. Ammonia is often collected as a by-product. (Webster)

Mondhaldeite. A name derived from a locality on the Kaiserstuhl, Baden, and applied by A. Osann to a group of dike rocks having the mineralogy of the hornblende-pyroxene andesites. Chemically they are andesites of about 60 per cent in silica, and with almost as much potash as soda. (Kemp)

Mond producer. A furnace used for the manufacture of producer gas. (Ingalls)

Monel Metal. A whitish alloy of high tensile strength and elastic limit, consisting of nickel 75 per cent, copper 23.5 per cent, and iron 1.5 per cent. (Webster)

Monheimite. A variety of smithsonite containing iron carbonate. (Dana)

Monitor. 1. In hydraulic mining, a contrivance consisting of nozzle and holder, whereby the direction of a stream can be readily changed. (Standard)

2. A car used to lower (or raise) coal on an incline. *See also* Gunboat. (Steel)

Monkey. 1. (Scot.) An appliance for mechanically gripping or letting go the rope in rope haulage. (Barrowman)
2. A contrivance placed between the rails at the head of an incline to prevent wagons or cars from running back. (Webster)
3. A small water-cooled bronze casting in the cinder-notch cooler through which cinder runs from cinder-notch when the bot is withdrawn. (Willcox)
4. A small glass-melting crucible. (Standard)
NOTE: The word "monkey" prefixed to a technical term means *small*, thus, *monkey* chute, a small chute; *monkey* drift, a small drift—usually driven in for prospecting purposes. (Chance)

Monkey boss. A man in charge of flushing the furnace and of claying up monkey and coolers. Helps on tapping hole also, and at cast. *See also* Monkey, 3. (Willcox)

Monkey chock (Aust.). *See* Bobbin, 1.

Monkey drift. A small drift driven in for prospecting purposes, or a crosscut driven to an airway above the gangway. (C. and M. M. P.)

Monkey gangway (Penn.). An air course driven parallel with a gangway and heading at a higher level (Gresley). Used where a seam has considerable pitch or dip.

Monkey jar. An earthenware vessel used in tropical countries for cooling drinking water. Also called Water-monkey (Standard). In Mexico it is called an *Olla*.

Monkey rolls. The smaller rolls in an anthracite breaker. (C. and M. M. P.)

Monkey shaft. A small shaft raise extending from a lower to a higher level. (C. and M. M. P.)

Monnier process. The treatment of copper sulphide ores by roasting with sodium sulphate, and subsequent lixiviation and precipitation. (Raymond)

Mono (Mex.). Vertical stull. (Dwight)

Monobasic. In chemistry, noting an acid which contains but one atom of hydrogen replaceable by a univalent element or radical to form a neutral salt. (Century)

Monoclinal. 1. Dipping only in one direction, or composed of strata so dipping; as, a *monoclinal* ridge; a *monoclinal* flexure. Sometimes improperly called *uniclinal*. 2. An abrupt downward flexure of nearly horizontal strata without any corresponding bend to form an anticline or syncline. 3. Loosely, any series of strata dipping in one direction only, as an isocline. (Standard)

Monocline. A monoclinal fold (Webster). *See* Monoclinal.

Monoclinic system. That system of crystals whose forms are referred to three unequal axes, two intersecting obliquely and the third perpendicular to both the others. (La Forge)

Monoclinic block. A quarry term, applied to a block of stone bounded by three pairs of parallel faces, eight of the twelve interfacial angles being right angles, two obtuse angles, two acut angles. (Bowles)

Monogenetic. One in genesis; resulting from one process of formation; said of a mountain range. (Webster)

Monolith. 1. A single stone or block of stone, especially one of large size, shaped into a pillar, statue, or monument. 2. A building material for floors, having a sawdust base and applied in a plastic condition. It is both fireproof and waterproof. (Webster)

Monometallic. Consisting of but one metal; specifically, comprising coins that consist of but one metal (or alloy), as gold or silver. (Century)

Monsel's salt. A basic sulphate of iron. (Webster)

Montaña. 1. (Sp.) Mountain. 2. (Mex.) Ores scattered through country rock and not found in deposits of any appreciable size. (Halse)

Montanite. A rare tellurate of bismuth, $Bi_2O_3.TeO_3.2H_2O$, from Montana. (Dana)

Montar. 1. (Sp.) To erect machinery or a plant. 2. (Colom.) To construct ditches for mining purposes. (Halse)

Monte-acid (Fr.). An acid elevator, as an apparatus by which acid is forced by compressed air to the top of one of the towers of a sulphuric acid manufactory. (Webster)

Monteador (Colom.). A prospector who searches for mines in forests and mountains. (Halse)

Montefiore furnace. A small furnace used for the recovery of zinc from blue powder by liquation. (Ingalls, p. 527)

Montejus (Fr.). An apparatus for raising a liquid by pressure of air, or steam, in a reservoir containing the liquid, utilizing the principle of the wash bottle of the chemical laboratory.

Monticellite. A calcium-magnesium silicate, $CaMgSiO_4$. In colorless to gray crystals, in masses (batrachite), or in crystals or grains in limestone. (Dana)

Monticle. A little hill, knob, or mound; especially, a subordinate volcanic cone. (Standard)

Monticulate. Characterized by or having little knobs or hills. (Standard)

Montiform. Mountain-like; having the shape of a mountain. (Century)

Montmartrite. A variety of gypsum, containing calcium carbonate. (Standard)

Montón (Sp.). **1.** An ore heap. **2.** A quantity of ore undergoing amalgamation. **3.** A Mexican unit of weight for ore, varying from 1,800 to 3,200 Spanish pounds, according to locality. (Standard) **4.** (Colom.) An irregular mass or deposit. **5.** *M. recto*, a wide vein between a stratified and nonstratified formation (Halse). A contact vein.

Monton wax. A wax obtained from bitumen extracted from Thuringian lignite by treatment with superheated steam, used principally as a carnauba-wax (Brazilian palm wax) substitute in the manufacture of polishes and as an insulating material in place of ceresin. (Bacon)

Montre (Fr.). In ceramics, an opening in a kiln-wall to permit inspection of the contents. (Standard)

Montroydite. Oxide of mercury, HgO. (U. S. Geol. Surv.)

Monument. A stone or other permanent object serving to indicate a limit, or to mark a boundary, as of a mining claim.

Monumentos (Mex.). Land marks or monuments; for mining claims, usually built of masonry, and placed at each corner of a mining claim. (Halse)

Monzonite. A granular igneous rock composed essentially of alkali-calcic plagioclase and orthoclase in nearly equal amounts, and accessory hornblende, biotite, or augite; nearly the same as Vogoite, *which see* (La Forge). Brögger recently used the name for a transitional and intermediate group of granitoid rocks between the granite-syenite series and the diorites. (Kemp)

Moonstone. A variety of feldspar, commonly transparent or translucent orthoclase, albite, or labradorite, which exhibits a delicate pearly opalescent play of colors. (U. S. Geol. Surv.) Used as a gem.

Moor. **1.** A more or less elevated tract of open, waste, or barren land, having, as a rule, a rather broad, flat, and poorly drained surface, commonly diversified by peat-bogs and patches of heath. (La Forge) **2.** (Corn.) An enrichment of ore in a particular part of a lode (Davies). *See also* More.

Moorband. A synonym for Moorpan, and Moorband pan.

Moorband pan; Moorpan (Eng). A hard ferruginous crust that forms at the bottom of boggy places above a stiff and impervious subsoil. (Power)

Moor coal. A friable variety of lignite. (Century)

Moore filter press. A movable, intermittent vacuum filter consisting of a series, or basket, of leaves fastened together in such a way that it may be dropped in a pulp tank and kept submerged until a cake is formed. It is then transferred by crane to an adjoining wash-solution tank and washed. The basket is then lifted out of the tank and the cake dropped. (Liddell)

Moorhouse (Corn.). A hovel built of turf for miners to change clothes in. *See* Changehouse.

Moorpeat. Peat formed from moss, and such as is found in certain moors. (Standard)

Moorstone (Corn.). Loose masses of granite found on Cornish moors. (Raymond)

Moor whin. Same as Whin.

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Mop. A disk surrounding a drill to prevent water from splashing up. (C. and M. M. P.) Also, a piece of burlap or coarse cloth used for the same purpose.

Morainal apron. Same as Apron, 8.

Moraine. An accumulation of earth, stones, etc., carried and finally deposited by a glacier. A moraine formed at the extremity of a glacier is called a *terminal moraine;* at the side, a *lateral moraine;* in the center and parallel with its sides, a *medial moraine* and beneath the ice but back from its end or edge, a *ground moraine.* (Webster)

Moraine profonde. Same as Ground moraine. *See* Moraine.

Morainic. Of, pertaining to, forming, or formed by a moraine. (Standard)

Morainic loops. Great loops, convex southward, in the continental terminal moraine of the North American glacial period; caused by ice-tongues filling valleys. The junction of contiguous loops form the interlobular moraines. (Standard)

Morass ore. Same as Bog iron ore. (Standard)

More (Corn.). A quantity of ore in a particular part of a lode, as a more of tin (Raymond. *See also* Moor, 2.

Morenosite. A hydrated nickel sulphate, $NiSO_4+7H_2O$. (Dana)

Morgan (Aust.). A band of carbonaceous shale occurring in the Borehole seam. (Power)

Morgen (Dutch). A South African land measure equal to 1.44 claims, or 2.1165 English acres. (Skinner)

Morillos (Mex.). Round poles for light timbering. (Dwight)

Morion. A nearly black variety of smoky quartz. (Dana)

Morlop (Aust.). A mottled jasper-pebble found in New South Wales, and much sought by miners, as it usually occurs with diamonds. (Standard)

Moromoro (Peru). An impervious, argillaceous rock. (Halse)

Moroxite. A blue, or greenish-blue variety of apatite. (Dana)

Morro (Mex.). Furnace-wall accretions. (Dwight)

Mortar. **1.** A heavy iron vessel, in which rock is crushed by hand with a pestle, for sampling or assaying. **2.** The receptacle beneath the stamps in a stamp mill, in which the dies are placed, and into which the rock is fed to be crushed. (Raymond) **3.** A building material made by mixing lime, cement, or plaster of Paris, with sand, water, and sometimes other material and used in masonry, plastering, etc. (Webster)

Mortar box. The large, deep, cast-iron box into which the stamps fall and the ore is fed in a gold or silver stamp-mill; also called Stamper-box (Roy. Com). *See* Mortar, 2.

Mortar mill. A mixing and stirring machine for combining lime, sand and other materials to make mortar. A form of pug mill. (Century)

Mortar structure. A term suggested by Törnebohm to describe those granites, gneisses or other rocks that have been dynamically crushed, so that large nuclei of their original minerals are set in crushed and comminuted borders of the same, like stones in a wall. (Kemp)

Mortero (Sp.). **1.** A stamp-mill. **2.** The mortar of a stamp. **3.** *M. común,* ordinary mortar. (Halse)

Mortification. Destruction of active qualities, as in mercury amalgamation. (Standard)

Mortise. A hole cut in one piece of timber, etc. to receive the tenon that projects from another piece. (C. and M. M. P.)

Morts terrains (Fr.). Barren or dead ground. The water-bearing strata overlying the coal measures. (Gresley)

Mosaic gold. Disulphide of tin. (Raymond)

Mosaic silver. An amalgam of mercury, tin, and bismuth, used for imitating silverwork. (Standard)

Moscorrofio (Colom.). Gold in wire or filaments accompanying pebbles; angular, or but little rounded gold. (Halse)

Mosqueado (Mex.). Spotted. Dark ruby silver occurring in separate grains or spots in quartz or other matrix. (Halse)

Moss agate. A kind of agate containing brown or black moss-like dendritic forms, due to the oxides of manganese or iron distributed through the mass. (Century.) Also called Mocha pebble; Mocha stone.

Moss box. A cast-iron, annular, open-topped box or ring, placed in water-bearing ground for making a water-tight seat, or bed, for the tubbing in the Kind-Chaudron system of shaft sinking. (Gresley)

Moss fallows. Parts of a bog from which the moss has been removed for fuel. (Standard)

Moss gold. Gold in dendritic forms. (Webster)

Moss hag (Scot.). A place where peat has been cut or washed away, leaving a treacherous surface. (Webster)

Moss land. Land abounding in peat moss, but scarcely wet or marshy enough to be called a bog or morass. (Standard)

Moss silver. Silver in dendritic or filiform shapes. (Webster)

Mossy. Like moss in form or appearance. Said of certain minerals. (Dana)

Mostrador (Mex.). Sampler. (Dwight)

Mote; moat. A straw filled with gunpowder for igniting a shot (Gresley). A fuse.

Mothergate. 1. (No. of Eng.) A road in the workings to be eventually converted into a main road. (Gresley)
2. (Newc.) The main passage in a district of mine workings. (Raymond)

Mother lode. 1. The principal lode or vein passing through a district or particular section of country. (Hanks)
2. The 'Great quartz vein' in California, traced by its outcrop for 80 miles from Mariposa to Amador (Standard). *See* Champion lode; *also* Veta madre

Mother of coal. *See* Mineral charcoal.

Motion. 1. (Ohio) A local term for the area of a quarry covered by the swing of a derrick boom, and, in addition, the area from which the blocks of stone may be economically dragged. (Bowles)
2. A term used in granite regions to designate small paving-block quarries. (Perkins)
3. A place in which a stonecutter quarries his own stone for subsequent cutting and finishing. 4. The part of the pit in which work is in actual progress. (Webster)

Motive column. The length of a column of air whose weight is equal to the difference in weight of like columns of air in downcast and upcast shafts. The ventilation pressure, in furnace ventilation, is measured by the difference of the weights of the air columns in two shafts. (Steel)

Motive power. Any power, as water, steam, wind, electricity, used to impart motion to machinery. (Webster)

Motor. 1. One who or that which produces or imparts motion or mechanical power. Specifically, a machine for producing or causing motion, especially one that acts by transmiting some other kind of energy into mechanical energy, or the energy of position into that of motion; a prime mover, as a steam engine, windmill, water wheel, or reversed dynamo. (Standard)
2. A haulage engine used around mines and operated by electricity or compressed air.

Motor body. The box-like portion at the lower end of a coal-cutting machine. (Morris *v.* O'Gara Coal Co., 181 Illinois App., p. 312)

Mottle. The spotted, blotched, or variegated appearance of any surface, as of wood or marble; especially, in metallurgy, the appearance of pig iron of a quality between white and gray. (Standard)

Motty (Eng.) A collier's mark on his corf (Webster). *See* Tally.

Moulin (Fr.). A nearly vertical shaft in a glacier into which a stream of water pours. (Webster)

Mountain. An eminence or ridge, either isolated or part of a range or of a group, standing conspicuously above the surrounding or neighboring country and, as a rule, characterized by steeply sloping sides, a relatively small summit area, and considerable bare rock surface. (La Forge)

Mountain blue. Blue copper ore; azurite. (Skinner)

Mountain brown ore. Limonite or brown iron ore: A local name applied in Virginia to the low-grade siliceous variety, which commonly occurs in hard lumps and which is found on the mountain slopes at or near the contact of the Cambrian shale and sandstone with the Cambro-Ordovician limestone. *See* Valley brown ore. (U. S. Geol. Surv.)

Mountain butter. A synonym for Alunogen (Chester). A hydrated aluminum sulphate in delicate fibrous masses or crusts.

Mountain chain. A series of mountains connected, and having some common characteristics.

Mountain cork. A variety of asbestos resembling cork. It is light and floats on water (Dana). Also called Mountain leather.

Mountain crystal. Rock crystal. (Webster)

Mountain flax. 1. Amianthus. A fine silky variety of asbestos. (Power) 2. Asbestos or asbestos-cloth. (Standard). Called also Earth flax.

Mountain green. Malachite. (Power)

Mountain leather. A tough variety of asbestos in thin, flexible sheets (Dana). *See also* Mountain cork.

Mountain limestone. The English designation of a limestone of the lower part of the Carboniferous age; called also Sub-Carboniferous limestone. (Raymond)

Mountain meal. Infusorial earth (Power). *See also* Bergmehl.

Mountain-milk. A very soft, spongy variety of calcite. (Standard)

Mountain paper. A thin, paper-like, variety of mountain cork. (Power)

Mountain range. 1. Loosely, same as Mountain chain. 2. Strictly, one of the component portions of a mountain chain, formed by a single orogenic movement (monogentic). (Standard)

Mountain soap. An unctuous variety of halloysite containing some iron oxide and about 24 per cent water. (Dana)

Mountain tallow. A soft, waxlike, hydrocarbon; also known as Hatchettite. (Dana)

Mountain wood. A variety of asbestos that is compact, fibrous, and gray to brown in color, looking like wood. (Dana)

Mounting pipe. *See* Column pipe.

Mouse-eaten quartz. Quartz full of holes once occupied by sulphides, now decomposed and gone. (Power)

Mousseline (Fr.). A thin glass, blown so as to imitate patterns in lace, as for claret-glasses. Called also Mousseline glass, Muslin glass. (Standard)

Mouth. 1. An opening resembling or likened to a mouth, as one affording an entrance or exit. 2. The opening in a metallurgical furnace through which it is charged; also the tap hole. 3. Any of several furnaces, each connected by a flue to a central opening in the oven of a pottery kiln. (Webster)
4. The end of a shaft, adit, drift, entry, tunnel, etc., emerging at the surface. (Raymond)

Mouthing (So. Staff.). A synonym for Inset.

Mouth of pit (Aust.). The top of a shaft. (Power)

Mouth plate. 1. (Scot.) A ridged cast-iron plate to direct hutch wheels from plates to rails. 2. (Scot.) An iron plate over the mouth of a bore hole. (Barrowman)

Movable ladder. *See* Man machine.

Movable stock (Eng.). Such equipment as can be sold without prejudice to the working of the colliery. It comprises, therefore, old pumps, unnecessary engines, and useless materials of every description. (G. C. Greenwell)

Move (No. Wales). A roof which is just about to fall, or is taking weight. (Gresley)

Moya (So. Am.). Volcanic mud, sometimes carbonaceous. Called also Mud lava; applied chiefly to such exudations in South America. (Standard)

Mozo (Mex.). Boy; man of all work; roustabout. (Dwight)

Muck. 1. Earth, including dirt, gravel hardpan and rock, to be, or being excavated; overburden. 2. To excavate or remove muck from. 3. To work hard; to toil. (Webster)
4. (Scot.) Rubbish; soft useless material (Barrowman). *See also* Smut, Dirt, Mullock.
5. A layer of earth, sand or sediment lying immediately above the sand or gravel containing, or supposed to contain, gold in placer mining districts, and may itself contain some traces of gold. (Cook *v.* Johnson, 3 Alaska, p. 516.)

Muck bar. Bar iron which has passed once through the rolls. (Raymond)

Mucker. 1. (U. S.) One who loads mine cars, and, in most mines, is also a trammer pushing the cars to the shaft, tunnel or adit mouth. (Weed)

2. One who excavates earth, or muck (Webster). This term applies more especially to metal mines. *See also* Mullocker.

Muck iron. Crude puddled iron ready for squeezing or rolling. (Webster)

Muckite. A resin from the coal beds at Neudorf, Moravia; it fuses between 290° and 310° C., has a specific gravity of 1.0025, and a composition corresponding to $C_{20}H_{32}O_2$. (Bacon)

Muckle. 1. Soft clay overlying or underlying coal. (Hargis)
2. (Corn.) A large jumper or drill. (Greenwell, p. 217)

Muckle hammer. A scaling or spalling hammer. (Standard)

Muck rolls. The first pair of rolls in a rolling mill. (Standard)

Mucks (Staff.). Bad earthy coal. (C. & M. M. P.) *See also* Smut.

Muck train. A set of muck rolls. (Standard)

Mucky hole. A tap hole from which the iron is so pasty that it does not run freely. (Willcox)

Mud. Moist and soft earth, or earthy matter whether produced by rains on the earthy surface, by ejections from springs and volcanoes, or by sediment from turbid waters; mire. (Century)

Mud bit. A chisel-like tool used in boring wells through clay. (Webster)

Mud bucket. A dredger bucket. (Webster)

Mud cap. A charge of dynamite, or other high explosive, fired in contact with the surface of a rock after being covered with a quantity of wet mud, wet earth, or sand, no bore hole being used. The slight confinement given the dynamite by the mud or other material permits part of the energy of the dynamite being transmitted to the rock in the form of a blow. A mud cap may be placed on top or to one side, or even under a rock, if supported, with equal effect (Du Pont). Also called Adobe, 'Doble, and Sandblast.

Mud cone. A volcanic cone built up of ejected mud (Webster). *See also* Mud volcano, 2.

Mud cracks. Irregular cracks intersecting the surface of dried mud, or the same more or less filled and hardened into rock, as fossil mud cracks. (Standard)

Mud drag. A dredge for clearing the bottoms of rivers or harbors (Standard). *Compare* Hedgehog, 2. Also called Mud dredge.

Mud drum. A drum forming the lowest part of some steam boilers in which the sediment settles for removal. (Webster)

Mudds (Newc.). Small nails. (Min. Jour.)

Mud fat (Aust.). Unctuous and plastic, like mud. (Standard)

Mud flat. A muddy, low-lying strip of ground by the shore, or an island, usually submerged more or less completely by the rise of the tide. (Century)

Mud geyser. *See* Mud pot.

Mud gun. A steam cylinder operating a plunger inside a steel tube 6 inches in diameter. Clay is fed into the hopper tube as the plunger is worked back and forth and is thus forced into the tap hole, at end of cast. (Willcox)

Mud lava. *See* Moya.

Mud lump. One of numerous mud-discharging cones dotting the shallows at the mouth of the Mississippi; upheaval from lower clays by pressure of surface deposits. (Standard)

Mud marks. The hardened flowings of mud over a smooth surface, or the same petrified, as fossil mud marks. (Standard)

Mud pot (Western U. S.). A geyser that throws up mud. Called also Mud geyser. (Standard)

Mud ring. The ring or frame forming the bottom of a water leg of a steam boiler. (Webster)

Mud scow. A flatboat or barge for the transportation of mud, generally used in connection with dredges. (Century)

Mudsill. The lowest sill of a structure, usually embedded in the soil; the lowest sill or timber of a house, bridge, or dam. (Webster)

Mud socket. A device used on drilling tools to clean mud or sand out of a well. (Webster)

Mudstone. A fine, more or less sandy, argillaceous rock, having no fissile character, and somewhat harder than clay. (Power)

Mud volcano. 1. A hollow cone in a volcanic region, from which material is ejected, by and with various

gases. The usual quiet emissions are interrupted at times by violent discharges, sometimes with columns of flame. Called also Salse, Air volcano, Maccaluba, and Mud cone. (Standard)

Mud-walled. Having a wall of mud, or materials laid in mud instead of mortar. (Century)

Mud wheel. In brickmaking, a wheel by which clay is thoroughly worked with water; a tempering wheel. (Standard)

Muela (Sp.). 1. The upper millstone. 2. The grinding stone of an *arrastre*. 3. *M. vertical*, the runner of a Chilean mill. (Halse)

Muesca (Mex.). A notch in a stick; mortise; notch cut in a round or square beam for the purpose of using it as a ladder (chicken ladder).

Mueseler lamp. A type of safety lamp invented and used in the collieries of Belgium. Its chief characteristic is the inner sheet-iron chimney for increasing the draft of the lamp. (C. and M. M. P.)

Muestra (Sp.). 1. Sample; specimen. 2. *Oficina de muestras*, sampling works. (Halse)

Muestrario (Sp.). A collection of samples obtained by boring. (Halse)

Muff. 1. A cylinder of glass before it is flattened out. (Standard)
2. A joining tube, or coupler, for uniting two pipes end to end. (Century)

Muffle. A semi-cylindrical or long arched-oven (usually small and made of fire clay), heated from outside, in which substances may be exposed at high temperature to an oxidizing atmospheric current, and kept at the same time from contact with the gases from the fuel. Cupellation and scorification assays are performed in muffles, and on a larger scale copper ores were formerly roasted in muffle furnaces (Raymond). Used also in ceramics, for firing pottery specially decorated, as by painting or printing. (Standard)

Muffle furnace. A furnace devised so as to shield its contents from direct contact with the flames. (Webster)

Muffle painting. Decoration, as on china, which will not bear kiln heat, but is fired in a muffle. It is of two kinds, hard and soft. (Standard)

Mufla (Mex.). Muffle. A rude cupel furnace for treating rich ore on a bath of lead. *See also* Vaso. (Dwight)

Muiçalheiro (Braz.). A trammer, shoveler, or helper. (Bensusan)

Mula (Mex.). Mule. (Dwight)

Mulata (Colom.). A compact quartz which is often gold bearing. (Halse)

Mulatto. A local name in Ireland for a Cretaceous green sand. (Kemp)

Mule. 1. A small car, or truck, attached to a rope and used to push cars up a slope or inclined plane. 2. (Joplin, Mo.) An extra man who helps push the loaded cars out in case of up-grade, etc.

Mule skinner. A mule driver. (Crofutt)

Muley brick. An imperfectly pressed brick. (Standard)

Muller. 1. The stone or iron in an arrastre, or grinding or amalgamating pan, which is dragged around on the bed to grind and mix the ore-bearing rock (Raymond)
2. A bucking iron.

Muller's glass. Hyalite, a variety of opal which is as clear as glass and colorless. (Dana)

Mullicite. A variety of vivianite occurring in cylindrical masses. (Dana)

Mulligan. 1. A heavy double-handed sledge for breaking runner scrap at blast furnaces. (Willcox)
2. A miner's term for soup.

Mullock (Eng.). A term sometimes used for the accumulated waste or refuse rock about a mine (Roy. Com.). *See* Muck, the term used in the United States.

Mullocker (Aust.). One who excavates and removes waste rock in distinction to one who removes ore (Webster.) *See* Mucker, which is American usage.

Mullocking (Aust.). Act or process of excavating and removing mullock (Webster). The American term is mucking.

Mullock reefs (Aust.). Reefs in which the matrix of the ore consists of country rock, frequently decomposed eruptive dikes. (Power)

Mullock tip (Aust.). Accumulations of waste rock coming out of a mine; a dump; also, spoil heap. (Raymond)

Mullock vein (Aust.). A decomposed eruptive dike in which the original disseminated gold and silver have been deposited in joints and fissures of the dike rock. This term appears to be unnecessary. (Shamel, p. 165)

Mulniello (Italy). A quarry or place in a coal mine where stone and débris are obtained for the purpose of stowing or filling up goaves. (Gresley)

Multa (Mex.). Penalty or fine. (Dwight)

Multiphase. In electricity, having components of various phase: said of rotating currents or the system employing them. (Standard)

Multiple-bench quarrying. The method of quarrying a rock ledge in a series of successive benches or steps. (Bowles)

Multiple proportions, law of. *See* Dalton's law.

Multiple series; Parallel series. A method of wiring a large group of blasting charges by connecting small groups in series and connecting these series in parallel. (Bowles)

Multiple shot. *See* Battery of holes.

Multure (Peru). The percentage of ore paid to the proprietor of a pulverizing mill as his recompense. (Standard). Derived from grist-mill practice in Scotland.

Mun (Corn). Any fusible metal. (Raymond)

Mundic (corn). Iron pyrite. White mundic is mispickel. (Raymond)

Mungle shale. An oil shale, in the West Calder district, Scotland. (Bacon)

Muñón (Sp.). 1. A trunnion of a Bessemer converter. 2. A gudgeon. (Halse)

Muntz metal. An alloy of copper, 60, and zinc, 40 per cent. (Ure)

Murchisonite. A variety of orthoclase of flesh-red color, resembling perthite. (Chester)

Murex process. A flotation process which is not strictly of the same class as the others, but it still makes use of the principle of selective oiling of sulphide particles. The crushed ore is fed into an agitator and mixed with 4 to 5 per cent of its weight of a paste made of 1 part of oil or thin tar with 3 or 4 parts of magnetic oxide of iron. This oxide must be ground to an impalpable powder. These ingredients, with enough water to make a pulp, are agitated from 5 to 20 minutes. The paste preferentially adheres to the sulphides because of the oil. The ore is then fed over magnets and oxide of iron, with the mineral adhering to it, pulled out. The oil and magnetite are then recovered. (Liddell)

Muriatic acid. The commercial name for hydrochloric acid, HCl.

Muro. (Sp.) 1. A wall. 2. The floor of a deposit, or footwall of a vein. 3. A mine dam. (Halse)

Murphy. *See* Rock drill.

Murra; Murrha (L.). A material first brought to Rome by Pompey, and used for costly vases and cups. It has been variously supposed to be Chinese jade, porcelain, iridescent glass, fluor, etc. (Standard)

Muschelkalk (Ger.). The middle division of the German Triassic (Webster). The word means shell-limestone. Etym., *muschel*, shell, and *Kalkstein*, limestone.

Muscovado. The Spanish word for brown sugar, used by Minnesota geologists for a rusty, brown, outcropping rock that resembles brown sugar. It has been applied to both gabbros and quartzites. (Kemp)

Muscovite. Potash-bearing, white mica, $H_2KAl_3(SiO_4)_3$. *See also* Mica. (U. S. Geol. Surv.)

Muscovitization. The process of changing a mineral, or rock, more or less into muscovite. (Standard)

Muscovy glass. Same as Muscovite. (Century)

Mush. 1. (Leic.) Soft, sooty, dirty earthy coal. (Gresley)
2. A greasy mud, sometimes found on bituminous coal. (Bacon)
3. (Alaska) A march on foot, especially across the snow with dogs. (Webster)

Mushroom hitch (Eng.). An inequality in the floor of a mine due to a projecting stone. (Webster)

Mushroom stone. A fossil resembling a mushroom. (Standard)

Mushy coal (Leic.). Soft, sooty or dirty coal, or coal that has been crushed. Same as Mush, 1. (Gresley)

Muskeg (Mich.). A swamp or bog composed principally of roots, decayed vegetal matter and black soil; it resembles peat, but it is more

earthy and more spongy. In Canada, any rocky basin filled by successive deposits of unstable material, as leaves, muck, and moss incapable of sustaining much weight; hence a large mud-hole.

Muslin glass. Same as Mousseline.

Mussel bind. Same as Mussel band.

Mussel band. A bed of clay ironstone containing fossil bivalve shells, anthracosia, etc. (Gresley)

Muthung (Pr.). A concession of mines from the State, generally about 612 acres, described in plan by straight lines and in depth by vertical planes. (Gresley)

Mutu (Malay). A term denoting the degrees of fineness of gold. (Lock)

Myelin. A soft, yellowish, or reddish-white, clay-like substance, identical with kaolin. (Chester)

Mylonite. A name suggested by the English geologist Lapworth for schists produced by dynamic metamorphism. (Kemp)

Mynpacht (So. Afr.) **1.** A mining concession, especially one made by the government to the owner of the surface concerned, and expressed in a *Mynpachtbrief*, or official grant of mining rights. **2.** The land owner's mining location, as distinguished from other mining claims on his tract, leased by the government. The land owner is entitled to demand a concession covering one tenth of his surface ownership. (Webster)

N.

Nablock. A rounded mass, as of flint in chalk, or of ironstone in coal. (Standard)

Nacido (Colom.). In placer mining a piece of granite lying on the bedrock in lieu of pay dirt. (Halse)

Naciente (Chile). East. (Halse)

Nacre (Fr.). **1.** Resembling pearl, as in iridescence; nacreous; as, the *nacre* enamel of Belleek porcelain. **2.** Mother-of-pearl. Also spelled Nacker. (Standard)

Nadel-diorite. Needle-diorite; a German term for diorites with acicular hornblende. (Kemp)

Nadorite. A mineral containing antimony, lead, oxygen, and chlorine, $PbClSbO_2$, occurring in brownish orthorhombic crystals, at Djebel-Nador, Algeria. (Century)

Nagelfluh. A conglomerate rock belonging to the Teritiary of Switzerland (Emmons). Also called Gompholite.

Nager (Brist.). A drill for boring holes for blasting charges. (Gresley)

Nagyagite. A sulpho-telluride of lead, gold, and antimony, possibly $Au_7Pb_{14}Sb_3Te_7S_{17}$. The gold content ranges from 5.8 to 12.8 per cent, the silver from 8.1 to 10.8 per cent. (U. S. Geol. Surv.)

Nahnsen process. An electrolytic process for the refining of impure zinc. Used in Upper Silesia. (Ingalls, p. 576)

Naif. Having a natural luster when uncut; as, a *naif* gem. (Standard)

Naife (Sp.). A diamond in the rough. (Halse)

Nail-head spar. A composite variety of calcite having the form suggested by the name. (Dana)

Nail. A shooting-needle, *which see.*

Nail plate. A plate of metal rolled to the proper thickness for cutting into nails. (Century)

Naked light. A candle or any form of flame lamp that is not a safety lamp (Steel). An open light.

Namma-hole (Aust.). A natural well. (Standard)

Nankin porcelain. Blue china. (Standard)

Nannies (York.). Natural joints, cracks, or slips in the coal measures. *See also* Cleat, **1.** (Gresley)

Nantokite. Cuprous chloride, Cu_2Cl_2. Granular, massive. Cleavage cubic. Luster adamantine. Colorless to white or grayish. (Dana)

Napal. (Malay) Indurated white clay carrying auriferous quartz streaks. Called also Steatite. (Lock)

Napalite. A peculiar waxy hydrocarbon C_6H_4, found in the Phoenix mine, near Midletown, Cal.; it has a dark reddish-brown color, is brittle, begins to fuse at 42° C., and boils above 300° C. (Bacon)

Naphtha. **1.** As used by ancient writers, a more fluid and volatile variety of asphalt or bitumen. **2.** In modern use, an artificial, volatile, colorless liquid obtained from petroleum; a distillation product between gasoline and refined oil. (Century)

Naphtha-gas. Illuminating gas charged with the decomposed vapor of naptha. (Standard)

Naphthalize. To impregnate or saturate with naphtha; enrich (an inferior gas) or carburet (air) by passing it through naphtha. (Century)

Napoleonite. 1. A synonym for Corsite. (Kemp)
2. A variety of hornblende. (Standard)

Nappes (Belg.). Water-bearing strata. (Gresley)

Nariyas. Gold-washers of the N. W. provinces of India. (Lock)

Nariz (Sp.). 1. A nose. 2. The nozzle of a bellows. 3. In smelting tin ore, the nose which forms in front of and attached to the tuyère. (Halse)

Narrow (No. of Eng.) A gallery, or roadway, driven at right angles to a drift, and not quite so large in area. (Gresley)

Narrow places (Aust.). Working places that are less than six yards wide; these are paid for by the yard in length. (Power)

Narrow work. 1. All work for which a price per yard of length driven is paid, and which, therefore, must be measured. Any dead work (Steel)
2. (Penn.) Headings, chutes, crosscuts, gangways, etc., or the workings previous to the removal of the pillars. 3. A working place in coal only a few yards in width. 4. A system of working coal in Yorkshire. (Gresley)

Narrow working. *See* Bord-and-pillar method; *also* Narrow work.

Nascent. Coming into existence, beginning to exist or to grow. From L. *nascens*, being born (Webster). A term used in the flotation process.

Nascent state. The condition of an element at the moment of liberation from a compound, marked, as in the case of hydrogen or oxygen, by a chemical activity greater than the ordinary. (Webster)

Nasmyth hammer. A steam hammer, having the head attached to the piston rod, and operated by the direct force of the steam. (Raymond)

Nata (Mex.). Same as *Escoria* or *Grasa*. (Dwight)

Natch. 1. (Scot.) A small hitch or dislocation. 2. (Scot.) The junction of two rails where through improper laying the two are not on the same level or line. (Barrowman)
3. To notch (Webster). A variation of notch.

Native. Occurring in nature pure or uncombined with other substances. Usually applied to the metals, as native mercury, native copper. Also used to describe any mineral occurring in nature in distinction from the corresponding substance formed artificially. (Century)

Native coke. *See* Carbonite, 1; *also* Natural coke.

Native elements. Elements that occur in nature uncombined, as nugget gold, metallic copper, etc. Compare Native.

Native metal. Any metal found naturally in that state, as copper, gold, iron, mercury, platinum, silver, etc. *See also* Native.

Native paraffin. *See* Ozocerite.

Native Prussian blue. Vivianite. (Power)

Native steel. A steel or steely iron occurring in small masses and made by the ignition of coal near an iron-ore deposit. (Standard)

Nativo (Sp.). Native. (Dwight)

Natrium. *See* Sodium.

Natrolite. A mineral of the zeolite family. A silicate of sodium and aluminum, $Na_2O.Al_2O_3.4SiO_2.2H_2O$. (Dana)

Natrometer. An instrument for measuring the quantity of soda contained in salts of potash and soda. (Century)

Natron. Hydrous sodium carbonate, $Na_2CO_3.+10H_2O$.. (U. S. Geol. Surv.)

Natron-Granites. Granites abnormally high in soda, presumably from the presence of an orthoclase rich in soda, or of anorthoclase. They are also called soda-granites. Natron is likewise used as a prefix to minerals and rocks that are rich in soda, as natron-orthoclase, natron-syenite, etc. (Kemp)

Nattle (Eng.). To make a slight broken noise as of rattling (Websted). Said of a mine when movement or settling is taking place.

Natural asphalt. *See* Asphalt.

Natural coke (Aust.). Coal that has been more or less coked by contact with an igneous rock. (Power)

Natural gas. A mixture of gaseous hydrocarbons found in nature; in many places connected with deposits of petroleum, to which the gaseous compounds are closely related. (U. S. Geol. Surv.)

Natural soft porcelain. A porcelain having a body of kaolin and calcium phosphate coated with a lead and boric acid glaze, as Worcester porcelain. (Standard)

Natural steel. Steel manufactured directly from the ore or by refining cast iron. (Standard) Steel in the condition left by a hot-working operation, and cooled in the open air. (Hibbard)

Natural ventilation. Ventilation of a mine without either furnace or other artificial means, the heat being imparted to the air by the strata, men, animals, and lights in the mine, causing it to flow in one direction, or to ascend. (Steel)

Naumanite. A selenide of silver and lead, occurring in large cubical crystals, also granular, and in thin plates of iron-black color and brilliant metallic luster. (Century)

Nautical mile. Equals 1.15136 statute miles. *See* Mile.

Nayfe (Port.). A diamond in the rough. (Halse)

Navite. Rosenbusch's name for Pre-Tertiary, porphyritic rocks, consisting of plagioclase, augite, and olivine as phenocrysts, with a second generation of the same forming the holocrystalline groundmass. The name is from Nava, a locality in the Nahe Valley. (Kemp)

Navvy. (Eng.) **1.** The part of the face of an ironstone mine between two roads. (Bainbridge)
2. A machine for excavating earth; more commonly called steam excavator or steam navvy. (Webster)
3. (Eng.) A laborer employed in mining, excavation, railroad work, etc.

Neanthropic. In geology, according to Dawson, the more recent portion of the anthropic, in which the area of land had become, by subsidence, smaller than in the Palanthropic. (Standard)

Neat. Pure; unmixed; undiluted, as a neat cement.

Neck. **1.** A lava-filled conduit of an extinct volcano, exposed by erosion (Kemp). Called also Chimney.
2. The narrow entrance to a room next to the entry, or a place where the room has been narrowed on account of poor roof. (Steel)
3. A narrow stretch of land connecting two larger tracts, as an isthmus. **4.** A narrow body or channel between two larger bodies of water; a strait. (Webster)
4. In metallurgy, that part of a furnace where the flame is contracted before reaching the stack. **5.** In brickmaking, one of a series of walls of unburned bricks in a clamp. (Standard)

Necklace. In ceramics, a necklace-like molding encircling the upper part of a vase or bottle. (Standard)

Neck leathers (Scot.). Washers fixed on the top of a pump bucket or clack lid. (Barrowman)

Needle. **1.** A piece of copper or brass about ½-inch in diameter and 3 or 4 feet long, pointed at one end, and turned into a handle at the other, tapering from the handle to the point. It is thrust into a charge of blasting powder in a bore hole, and while in this position the bore hole is tamped solid, preferably with moist clay. The needle is then withdrawn carefully, leaving a straight passageway through the tamping for the miner's squib to shoot or fire the charge. (Du Pont)
2. A hitch cut in the side rock to receive the end of a timber. (Steel)
3. (Scot.) A beam across a shaft at a landing to support the cage; buntons. (Barrowman)
4. A needle-shaped or acicular crystal. (Standard)

Needle ironstone. The capillary variety of göthite. (Chester)

Needle ore. **1.** Aikinite. A lead-copper-bismuth sulphide. (Dana)
2. Iron ore of very high metallic luster, found in small quantities which may be separated in long slender filaments resembling needles. (Standard)

Needle spar. An old synonym for Aragonite. (Chester)

Needle stone. *See* Natrolite.

Needle timber (Aust.). Long sticks of timber, the lower end of which rests against the foot of a prop in a steep seam, so as to keep it in position, while the upper end is let into a hitch in the roof. (Power)

Needle valve. A valve provided with a long tapering point in place of the ordinary valve disk. The tapering point permits fine graduation of the opening. At times called a Needle-point valve. (Nat. Tube Co.)

Needle zeolite. Natrolite, scolecite, or any similar mineral having needle-like crystals. (Standard)

Neft-gil; Neftdegil. A mixture of paraffins and a resin occurring on Cheleken Island in the Caspian. It is related to zietrisikite. (Bacon)

Negative crystal. A birefringent crystal in which the refractive index of the extraordinary ray is less than the refractive index of the ordinary ray. (Dana)

Negociación (Sp.). Business undertaking—at a mine, or set of mines, etc. (Min. Jour.)

Negocio (Sp.). Business; enterprise. (Dwight)

Negrillo. (Sp. Am.). 1. A dark-colored silver ore, as argentite, stephanite, etc. 2. A very dark cupriferous silver ore. (Halse)

Negro. 1. (Peru and Chile) A dark fine-textured *caliche.* 2. (Mex.) A lead-gray cinnabar. 3. (Mex.) Tetrahedrite. 4. *Negro-negro* (Colom.), a black micaceous schist. 5. (Mex.) Sulphide silver ores. 6. (Mex.). Iron pyrite containing native silver and argentite. 7. (Mex.) Antimonial gray copper ore mixed with blende, galena, copper, and arsenical iron pyrite. (Halse)

Negrohead, or Niggerhead tuyère. A tuyère having on its end a cubical block which is built into the furnace. (Standard)

Nekoza (Japan). Straw mats specially woven and used for catching gold in the sluices. (Lock)

Nelsonite. A dike rock composed essentially of ilmenite or rutile and apatite. (U. S. Geol. Surv.)

Nemaline. In mineralogy, fibrous or threadlike; said of structure. (Standard)

Nemalite. A fibrous variety of brucite. (Standard)

Neme (Colom.). An oxide of manganese. (Halse)

Neocene. The later of the two epochs into which the Tertiary period was formerly divided and at one time used by many geologists. Also the series of strata deposited during that epoch. It is no longer used. (La Forge)

Neocomian. Of or pertaining to the lower part of the Cretaceous epoch. (Standard)

Neodymium. A rare metallic element occurring in combination with cerium, lanthanum, and other rare metals. Yellowish in color and tarnishes slowly in the air. Symbol, Nd; atomic weight, 144.3; specific gravity, 6.96. (Webster)

Neogen. An alloy resembling silver, containing copper 58 parts, zinc 27, tin 2, nickle 12, bismuth ½ part, and aluminum ½. (Standard)

Neogene. The later of the two periods into which the Cenozoic era is divided in the classification adopted by the International Geological Congress and used by many European geologists. Also the system of strata deposited during that period. It comprises the Miocene, Pliocene, Pleistocene, and Holocene or Recent epochs. *See* Paleogene. (La Forge)

Neo-Jurassic. Pertaining to, or occurring in, certain Upper Jurassic beds in Portugal, which are mainly correlated with the Kimmeridge beds, and with some beds in the United States. (Standard)

Neolite. A silky, fibrous, stellated, green, hydrous, magnesium-aluminum silicate. (Standard)

Neolithic. Designating, pertaining to, or belonging to a stage of human culture following the paleolithic and characterized by an advance in civilization denoted by more and better implements of stone, bone, and horn, by the beginning of agriculture, and the presence of domestic animals. (Webster)

Neolote. A name used by Clarence King for an order of volcanic rocks embracing the rhyolites and basalts with which, according to the succession formulated by von Richthofen, eruptive activity terminates in any given area. (Kemp)

Neon. An inert gaseous element found in the atmosphere, of which it constitutes one or two thousandths of a per cent by volume. Symbol, Ne; atomic weight, 20.2; specific gravity, 0.69. (Webster)

Neo-Paleozoic. The later portion of Paleozoic time, including the Upper Siluric, Devonic, and Carboniferous. (Standard)

Neovolcanic. Of effusive character and erupted during the Cenozoic era: formerly said of some igneous rocks, but now virtually obsolete. Contrasted with Paleovolcanic. (La Forge)

Neozoic. Pertaining to or designating the entire period from the end of the Mesozoic to the present time. Cenozoic. (Webster)

Nepheline. Same as nephelite.

Nephelinite. A granular to aphanophyric igneous rock composed essentially of nephelite and pyroxene. (La Forge)

Nephelinitoid. Boricky's term, now used in microscopic work for nepheline-glass, or the glassy basis in nepheline rocks, whose easy gelatinization indicates its close relations with this mineral; unindividualized nephelite. (Kemp)

Nephelite. An orthosilicate of sodium, potassium, and aluminum, (Na, K)-$Al_2Si_2O_{84}$ (Dana). Also called Nepheline.

Nephelite-basalt. An old, general name for basaltic rocks with nephelite, but now restricted to those that practically lack plagioclase, and that have nephelite, augite, olivine, and basis. (Kemp)

Nephelite-basanite. Basaltic rocks with plagioclase, nephelite, augite, olivine, and basis. *Compare* Nephelite-tephrite. (Kemp)

Nephelite-syenite. A granular igneous rock consisting of orthoclase, nephelite, and one or more of the following: hornblende, augite, and biotite. The rock results from magmas especially rich in alkalies, and possesses great scientific interest on account of its richness in rare, associated minerals. (Kemp)

Nephelite-tephrite. A gray, volcanic rock composed of pyroxene, plagioclase, nephelite, and magnetite. (Standard)

Nephrite. *See* Jade.

Neptune powder. An explosive resembling dynamite No. 2, and consisting of nitroglycerin with a more or less explosive dope. (Raymond)

Neptunian. An early term applied to water-formed strata as opposed to plutonic or igneous rocks. (Power)

Neptunist. One who held the theory that the successive rocks of the earth's crust were formed by the agency of water (Webster). Usage obsolete.

Nereite. A fossil worm track. (Webster)

Nero-antico (It.). A black marble found in Roman ruins: probably the ancient *marmor taenarium*, from Cape Taenarus, Greece. (Standard)

Nervio (Sp.). A parting in a seam of coal. (Halse)

Nesh (Eng.). Friable, soft, crumbly, powdery, dusty. Said of coal. (Gresley)

Nesquehonite. A hydrous, magnesium carbonate, $MgCO_3+3H_2O$. In radiating groups of prismatic crystals. Colorless to white. From a coal mine at Nesquehoning, Pa. (Dana)

Ness; Naze. A cape, headland, or promontory most commonly used as a termination, as in Dung*eness*.

Nessler's solution. An aqueous solution of potassium and mercuric iodide, made strongly alkaline with potassium hydroxide. (Webster)

Nest. A small isolated mass of any ore or mineral within a rock. (Webster)

Nested crater. A central volcanic vent showing a crater within a crater. (Daly, p. 144)

Nest-weise (Forest of Dean). Iron ore that occurs in pockets is said to lie nest-weise. (Gresley)

Net (Scot.). Strapping used for lowering or raising horses in shafts. (Barrowman)

Nether coal (Mid.). The lower division of a thick seam of coal. (Gresley)

Nether-formed. Formed or crystallized below the earth's surface, as granite. (Standard)

Net masonry. Masonry formed of small square bricks or stones placed diagonally in a lozenge pattern; reticulated masonry. (Standard)

Neudorfite. A resin, $C_{15}H_{28}O_2$, that occurs in a coal bed at Neudorf, Moravia. (Bacon)

Neutral. Of slags, neither acid nor basic; of wrought-iron, neither red-short nor cold-short; of iron ores, suitable for the production of neutral iron. (Raymond)

Neutral oil. 1. An oil of 32° to 36° Bé. gravity, 290° to 318° F. flash point, and 47 to 81 sec. Saybolt viscosity at 70° F. It is sometimes mixed with animal or vegetal oils.

2. The paraffin oils that are obtained by the steam-distillation of paraffin-base petroleums after the second-grade illuminating oil has been run off. Neutral oil carrying paraffin is known as Wax distillate. (Bacon)

Neutral salt. A salt in which all of the hydrogen of the hydroxyl groups of an acid is replaced by a metal (Standard). As, in sodium chloride, NaCl, the sodium has replaced the hydrogen of hydrochloric acid, HCl.

Nevada system. *See* Square-set stoping.

Nevadite. A rhyolite that approximates a granitoid texture, *i. e.*, with little groundmass. (Kemp)

Névé. The mass of granular snow forming the upper part of a glacier. Also called Firn. (Webster)

Nevyanskite. A tin-white alloy of iridium and osmium with other platinum metals occurring in flat scales (Standard). Contains over 40 per cent iridium. (Dana)

Newaygo screen. A slanting screen down which the material to be screened passes. The screen is kept in vibration by the impact of a large number of small hammers. (Liddell)

Newkirkite. An early synonym for Manganite. (Chester)

New red sandstone. The assemblage of red sandstone, conglomerates, shales, etc., occupying the interval between the top of the Coal Measures and the base of the Jurassic system in western Europe. It is now separated into Triassic and Permian and the name has only a historic interest. (La Forge)

New sand. Newly mixed, but not unused, molder's sand. (Standard)

Newton's alloy. An alloy containing 20 per cent bismuth, 50 lead, and 30 tin. Melting point, 202.1° F. (Webster)

N-Frame brace. A diagonal brace in a square set. (Sanders, p. 49)

Niccoliferous. *See* Nickeliferous.

Niccolite; Arsenical nickel. Arsenide of nickel, NiAs. Contains 43.9 per cent nickel (U. S. Geol. Surv.). Also called Copper nickel. (Standard)

Nicholsonite. A variety of aragonite (the orthorhombic carbonate of calcium, $CaCO_3$, containing from less than 1 per cent up to 10 per cent of zinc. (U. S. Geol. Surv.)

Nick. To make a cut, with the pick, in the face of (coal) at the junction of the face and rib, to weaken resistance to the blast or wedge; to shear. (Standard). *See* Nicking.

Nickel. A hard, malleable, ductile, metallic element of the iron group, nearly silver-white, capable of a high polish and resistant to oxidation. It is attracted by magnets. Symbol, Ni; atomic weight, 58.68; specific gravity, 8.8. (Webster)

Nickel bloom. *See* Annabergite.

Nickel carbonyl. A colorless, poisonous liquid, $Ni(CO)_4$, obtained by passing carbon monoxide over finely divided nickel. (Webster)

Nickel glance. Same as Gersdorffite. (Standard)

Nickel gymnite. A gymnite in which part of the magnesium is replaced by nickel. A synonym for Genthite. (Chester)

Nickeliferous. Containing nickel.

Nickeline. 1. An alloy of nickel, a variety of German silver. 2. An alloy of nickel, copper, zinc, iron, cobalt, and manganese. (Webster)

Nickel ocher. An early name for Annabergite. (Chester)

Nickel silver. An alloy resembling German silver but containing more nickel; used by jewelers. (Standard)

Nickel skutterudite. A mineral of the skutterudite type, containing nickel. An arsenide of nickel and cobalt, of gray color and granular structure. (Chester)

Nickel steel. An alloy of iron and about 3 per cent nickel, combining great strength with great ductility and nonfissility; used for the best armor plates. (Standard)

Nickel vitriol. Same as Morenosite. (Standard)

Nicking. 1. A vertical cutting or shearing up one side of a face of coal. Called Cut, and Cutting. 2. The chipping of the coal along the rib of an entry, or room, which is usually the first indication of a squeeze. (Steel)

Nickings (Newc.). The small coal produced in making the nicking (Duryee). *See also* Bug dust; Makings.

Nicking trunk. A tub in which metalliferous slimes are washed. (Raymond)

Nicol prism. An instrument for experiments in polarized light, consisting of a rhomb of clear calcite which has been bisected obliquely at a certain angle and had its two parts again joined with transparent cement, so that the ordinary ray produced by double refraction is totally reflected from the internal cemented surface, and the extraordinary, or polarized, ray is alone transmitted. (Webster)

Nicopyrite. A variety of pyrite containing nickel. An old synonym for Pentlandite. (Chester)

Nidge (Eng.). To dress, as stone, with a sharp-pointed hammer. Same as Nig. (Standard)

Nido (Sp.). Nodule. (Lucas)

Niello. 1. Any of several metallic alloys of sulphur, with silver, copper, lead, or the like, having a deep-black color. 2. Art, process, or method of decorating metal with the black alloy. 3. A piece of metal, or any other object so decorated. (Webster)

Niello silver. A bluish alloy of silver, lead, copper, and bismuth, with admixture of sulphur. Called also Russian tula. (Standard)

Nig (Eng.). To dress, as stone, with a sharp-pointed hammer. Same as Nidge. (Standard)

Nigger ashlar (Corn.). A mode of dressing stone, in which the face is left rough. (Crofutt)

Niggerhead. 1. A bowlder or rounded field stone. 2. A black nodule found in granite. 3. Slaty rock occurring with sandstone (Gillette, p. 6). *See also* Hardhead, 2 and 3.
4. A hard, round piece of rock, sometimes found in coal seams. (Roy)
5. A slip pulley on a winch. The rigger takes about six turns of rope about the pulley, and by varying tension on rope which he holds, can vary speed of hoist on lowering object with engine running. (Willcox) 6. *See* Negrohead.

Night fossicker (Aust.). One who robs gold-diggings in the night (Standard). *See* Fossick; Fassicker.

Night pair (Corn.). Miners who work underground during the night. (Pryce). The night shift.

Nigrine. A ferriferous rutile. (Dana)

Nigrite. 1. A name given to a variety of asphalt mined at Soldier summit, Utah, but whose composition is imperfectly understood. (U. S. Geol. Surv.) 2. An insulating composition consisting of the impure residuum obtained in the distillation of paraffin. (Standard)

Nihil album; Nil album. *See* Zinc oxide.

Nil. Nothing; a thing of no account (Webster). Often used in reporting gold and silver assays.

Nill. 1. Scales of hot iron thrown off during forging. 2. More rarely, sparks of brass during manufacture. (Standard)

Niobio (Sp.). Niobium. (Dwight)

Niobium. A later name for Columbium. (Webster).

Nip. 1. (Newc.) A crush of pillars or workings. *See* Pinch, 1. (Raymond)
2. (So. Wales). A thinning of a coal bed in which the roof and floor come nearly together. 3. To cut grooves at the ends of bars, to make them fit more evenly. (Gresley)
4. *See* Angle of nip.

Nip out. The disappearance of a coal seam by the thickening of the adjoining strata, which takes its place. (C. and M. M. P.)

Nipped. Pinched: applied to veins when they become narrower or thinner than usual. (Power)

Nipper. 1. An errand boy, particularly one who carries steel, bits, etc., to be sharpened. (C. and M. M. P.)
2. (Eng) A tool used by the lander for seizing the kibble, and upsetting it into the wheelbarrow. (Hunt)
3. In coal mining, a trapper or door boy.

Nipping fork. A tool for supporting a column of bore rods while raising or lowering them. (Raymond)

Nipple (Mid.). *See* Fissle. A word used to express the crepitant noises made by the settling down or weighting of the roof. (Gresley)

Níquel (Sp.). 1. Nickel; *N. bronce*, nickel-bronze. 2. Nickel ore. *N. arsenical*, niccolite. (Halse)

Nissen stamp. A gravity stamp with an individual circular mortar for each stamp. (Liddell)

Niter; Saltpeter. Potassium nitrate, KNO_3. (U. S. Geol. Surv.)

Niter cake. Crude sodium sulphate, a by-product in the manufacture of nitric acid from sodium nitrate. (Century)

Niton. A colorless gas resembling argon; radium emanation. Symbol Nt; atomic weight, 222.4. (Webster)

Nitral (Sp.). A niter bed or deposit. (Halse)

Nitrate. **1.** A salt of nitric acid, as silver *nitrate;* barium *nitrate.* (Standard)
2. To treat or prepare with nitric acid; to convert a base into a salt by combination with nitric acid. (Century)

Nitratine. Same as soda-niter. (Standard)

Nitreria (Sp.). Niter or saltpeter works. (Halse)

Nitric acid. A colorless highly corrosive liquid, HNO_3, found in nature in small quantities, but usually made by decomposing sodium or potassium nitrate with sulphuric acid. It is extensively used in the arts for dissolving metals. Called also *Aqua fortis.* (Standard)

Nitrite. A salt of nitrous acid. (Standard)

Nitro. A corrupted abbreviation for nitroglycerin or dynamite. (Ihlseng)

Nitrobarite. Native barium nitrate, $Ba(NO_3)_2$. (Standard)

Nitrocalcite. Hydrous calcium nitrate, $Ca(NO_3)_2+nHO$. (Dana)

Nitrocellulose. A term used to include the various nitrates of cellulose, such as guncotton, nitrolignine, nitrocotton, nitrojute, etc. The most common of these is nitrocotton. (Du Pont)

Nitrocotton. A chemical combination of ordinary cotton fiber with nitric acid. It is explosive, highly inflammable and in certain degrees of nitration, soluble in nitroglycerin. (Du Pont)

Nitrogelatin. Same as Gelatin dynamite. (Standard)

Nitrogen. A colorless, gaseous element, tasteless and odorless, constituting about four fifths of the atmosphere by volume. Symbol, N; atomic weight, 14.01; specific gravity, 0.967. (Webster)

Nitroglycerin. The product of the action of nitric acid and sulphuric acid on glycerin. It is not properly a nitro compound as the name implies but is a nitric ester of glycerin. (Brunewig, p. 253).
It is an oily substance about one and one-half times as heavy as water (Sp. gr. 1.6), is almost insolble in water, and is used as a principal or active ingredient in dynamite, gelatin dynamite, etc. It is not used commercially in the form of a liquid, except for 'shooting' oil wells. (Du Pont)

Nitrohydrochloric acid. A yellow, fuming, corrosive liquid, made by mixing one part of pure nitric acid with from three to four parts of pure hydrochloric acid. It dissolves gold and platinum, and hence is called Aqua regia, *also* Nitromuriatic acid. (Standard)

Nitromagnesite. A hydrous magnesium nitrate, $Mg(NO_3)_2+nH_2O$. (Dana)

Nitromuriatic acid. *See* Nitrohydrochloric acid.

Nitro-substitution. The act or process of introducing by substitution the radical nitryl (NO_2) in place of one or more replaceable hydrogen atoms, as in an organic compound (Standard). *Nitro-substitution* compounds are used in the manufacture of certain kinds of explosives.

Nitrosulphuric acid. An exceedingly corrosive mixture of one part of nitric acid mixed with two parts by weight of sulphuric acid. It is used in the manufacture of nitroglycerin. (Standard)

Nitrosyl sulphuric acid. A colorless white crystalline acid, $H(NO)SO_4$, formed by the reaction of sulphuric acid with oxides of nitrogen (not N_2O), by the reaction of sulphur dioxide with nitric oxide, or nitrogen peroxide, etc. (Webster)

Nitting (Eng.). The refuse from workable ore. (Standard)

Nivation. In geology, the specific effects produced by *névé* in land sculpture: distinguished from those of glacier ice, called glaciation. (Standard)

Nivel (Sp.). **1.** A level, as a leveling instrument. **2.** Level. **3.** A level or gallery in a mine (Halse). *N. de agua,* water level. (Min. Jour.)

Nivelación (Sp.). Leveling; grading. (Halse)

Nivenite. A variety of uraninite high in uranium and carrying 10 per cent or more of the yttrium earths and 6.7 to 7.6 per cent thoria. It is wholly soluble in dilute sulphuric acid. *See also* Uraninite. (U. S. Geol. Surv.)

Noble. A term used in mineralogy to express superiority or purity, *e. g.*, noble opal, noble tourmaline, noble serpentine, etc. (Power)

Noble metals. The metals which have so little affinity for oxygen (*i. e.*, are so highly electronegative) that their oxides are reduced by the mere application of heat without a reagent; in other words, the metals least liable to oxidation under ordinary conditions. The list includes gold, silver, mercury, and the platinum group (including palladium, iridium, rhodium, ruthenium, and osmium). The term is of alchemistic origin. (Raymond)

Nocking (Corn.). *See* Knocking, 2; *also* Cob, 1.

Noddle; Nodule. A small rounded mass. (Raymond)

Nodular. Having the shape of or composed of nodules. (La Forge.) Said of certain ore.

Nodule. A small roundish lump of some mineral or earth, as a nodule of ironstone. (Webster)

Nodulize. To convert into nodules, as finely divided ores. (Webster)

Nódulo. 1. (Sp.) Nodule. 2. (Colom.) A place in a lode where the ore is abundant. (Halse)

Nog. 1. (Eng.) Logs of wood piled one on another to support the roof, largely used in longwall mining (Chance). *See* Chock, Crib and Cog.
2. A square block of wood used in the support of a mine roof. (Standard)
3. (Derb.) A piece of iron driven into wood to prevent forks (props) getting loose. (Mander)

Noger. A jumper drill. (Raymond)

Nogging. 1. Rough brick masonry used to fill in the open spaces of a wooden frame. (Webster)
2. Pieces of wood inserted in a masonry wall, to stiffen it, or upon which to nail finishing stuff. (Standard)

Nogging piece. A horizontal timber set in between courses in a wall of masonry. (Standard)

Nolascite (Chile). A variety of galenite containing arsenic. (Chester)

Nolichucky shale. A Cambrian formation of the Southern Appalachians. From the Nolichucky river in Tennessee. (Webster)

Nominal horsepower. A term used by some engine makers to express certain measurements of cylinder. (Webster)

Nominal rate. In finance, the rate that would be realized if the interest received at the end of each conversion interval were not profitably invested until the end of the year, while the *effective rate* is the total return on the unit principal for one year. (E. B. Skinner, p. 59)

Nominal selling price (Aust.). *See* Declared selling price.

Noncoking coal. A bituminous coal that burns freely without softening or any appearance of incipient fusion. The percentage of volatile matter may be the same as for coking coal, but the residue is not a true coke. (Bacon)

Nonconformable. *See* Unconformity.

Nonesite. Phorphyrites with orthorhombic pyroxene. The name was given by Lepsius. (Kemp)

Nonmetal. An element that is not a metal. Any of several elements, as boron, carbon, phosphorus, nitrogen, argon, oxygen, sulphur, etc. (Webster)

Nonmetallic. Not metallic. Of, pertaining to, or of the nature of, a nonmetal. (Webster)

Nonseat (Mid.). *See* D-Link.

Nonwetted. A term used in the flotation process, and applied to certain metallic minerals that refuse to be wetted with water but are easily wetted with oil.

Nook. 1. The corner of a working place at the junction of the face with one side. (C. and M. M. P.)
2. (No. of Eng.) A corner of a pillar of coal (Gresley). Also spelled Neuk.

Nooper (Leic.). A tool used by colliers for preparing coal. *See also* Dresser, 1. (Gresley)

Noper (Derb.). *See* Loading pick.

Noque. 1. (Peru) *See* Cocha. 2. (Chile) A large stone receptacle for the calcination of ore in the open air. A stone trough in which amalgam is washed. (Halse)

Nordhausen acid. Fuming sulphuric acid, $H_2SO_4SO_3$.

Nordmarkite. Brögger's name for a sodic variety of syenite consisting of orthoclase, some oligoclase, more or less microperthite, quartz and somewhat subordinate biotite, pyroxene, hornblende and ægerite. Nordmarkites are high in silica and the alkalies. (Kemp)

Noria (Sp.). An endless chain with buckets attached, revolving around a wheel about 20 feet in diameter for raising water out of a shallow mine. (Halse)

Norite. A variety of gabbro consisting of plagioclase and orthorhomic pyroxene, usually hypersthene. The name has had a variable history and was originally proposed in 1832 by Esmark for aggregates of feldspar and bornblende which were lacking or notably poor in diallage and hypersthene. But as many localities were cited which in later years on microscopic examination were found rich in these minerals, Rosenbusch finally gave the name its above definition and this is its generally accepted signification. (Kemp)

Norm. A theoretical, and in part arbitrary, mineral composition of a rock, calculated, in accordance with certain rules, from the chemical analysis, for the purpose of assigning the rock its place in the *norm* system of rock classification. The norm rarely coincides with the real mineral composition, or *mode*, of a rock (Ransome). *Compare* Mode.

Normal benzine. Benzine of the specific gravity 0.695–0.705 at 15° C. and boiling from 65°–95° C. (Bacon)

Normal fault. An inclined fault of which the down-thrown side is the hanging-wall side. (La Forge). Also called Tension fault or Gravity fault (Steel). *See also* Fault.

Normal fold. An anticline, or syncline, with equal dips on each side; in contradistinction to an *overthrow fold.* (Power)

Normalized steel. Steel that has been given a normalizing heat treatment intended to bring all of a lot of samples under consideration into the same condition. (Hibbard)

Normal pressure. Standard pressure, usually taken to be equal to that of a column of mercury 760 mm. in height (Webster). Approximately 14.7 pounds per square inch.

Normal price. As applied to metal prices, is the average over a long term—sometimes a period greater than the life of a mine. *See also* Basic price. (H. C. Hoover, p. 36)

Normal-pyroxenic. Bunsen's name for his assumed, typical, basic, igneous magma with 48 per cent SiO_2 as contrasted with the corresponding normal-trachytic one with 76 per cent SiO_2. He sought to explain all intermediate rocks by the intermingling of these two. Although apparently applicable at times and serviceable in their day, the conceptions have long since exploded. (Kemp)

Normal salt. A salt in which all the hydrogen of the acid has been replaced by metals. (A. F. Rogers)

Normal shift. The horizontal component of the shift at right angles to the fault strike. (Lindgren, p. 122)

Normal solution. A solution containing one gram-equivalent of the solute in one liter of solution.

Normal temperature. In laboratory investigations, 25° C. or 77° F. (Bacon)

Norman tile. Brick having the dimensions 12 by 2¼ to 2½ by 4 inches. (Ries)

Normative. In petrology, characteristic of, pertaining to, agreeing with, or occurring in the norm: used in the quantitative or norm system of classification of igneous rocks, a normative mode being one which is essentially the same as the norm. (La Forge)

Norm system. A system of classification and nomenclature for igneous rocks based on the *norm* (*which see*) of each rock. Only undecomposed rocks of which accurate chemical analyses are available are classifiable, in this system, which consequently is more used in detailed petrologic studies than in ordinary geologic or mining work. The system was devised by Messrs. Cross, Iddings, Pirsson, and Washington, and by them originally designated "the Quantitative System," and later the "C. I. P. W. System." It has also been referred to as the "American System." (Ransome)

Norte (Sp.). North. (Dwight)

North end (York.). The rise side of the coal in North Yorkshire. (Gresley)

Northing. In surveying, difference of latitude, measured toward the north, between any position and the last one determined. (Standard)

North Staffordshire method. *See* Bord-and-pillar method.

Nose. 1. An accumulation of chilled material around the inner end of a tuyère in a smelting shaft furnace, protecting and prolonging the tuyère. (Raymond)
2. (Scot.) A point; a projecting angle of coal or other mineral. (Barrowman)
3. To dip or extend in noselike form; said of strata or veins. (Webster)

Nosean. *See* Noselite. The name of the mineral is often prefixed to the names of rocks containing it. (Kemp)

Nose helve Eng.). *See* Frontal hammer.

Nose hole. In glass making, a small opening in a furnace, before which the globe of crown glass is held and kept soft at the beginning of the flattening process. (Webster)

Nose-in (Eng.). A stratum is said to "nose in" when it dips beneath the ground into a hillside in a V or nose form. (Gresley)

Noselite. A mineral of the sodalite group, near hauynite, but containing little or no lime. (Dana)

Nose-out. 1. (Eng.) A nose-shaped stratum cropping out. (Gresley)
2. To diminish by losing stratum after stratum and getting into the lower part of the measure; said of a coal seam. (Standard)

Nose pipe. The inside nozzle of a tuyère. (Standard)

Notching. A method of excavating in a series of steps. (Standard)

Notch stick (Forest of Dean). A short stick notched or nicked, used by miners as records of the number of cars of coal, etc., they send out of the mine during the day. (Gresley)

Notice board (Scot.). A board on which printed or written notices are posted (Barrowman). A bulletin board.

Nottingham longwall, or Barry, system. *See* Longwall method.

Noumeite. Same as Garnierite. (Dana)

Nouvelle Montagne furnace. A modification of the Liège furnace, in so far as the arrangement of the fireplace is concerned. It is a double furnace served by one fireplace. (Ingalls, p. 431)

Novaculite. An excessively fine-grained, quartzose rock supposed to be a consolidated, siliceous slime and of sedimentary origin. It is especially developed in Arkansas, and much used as a whetstone. (Kemp)

Nowel. 1. The inner part of a large mold, corresponding to the core in small work. 2. The bottom or drag of a molding flask, as distinguished from the cope. (Standard)

Noxious. Causing or tending to cause injury, especially to health or morals; hurtful; pernicious; as, *noxious* gases, etc. (Standard)

Nozzle. 1. A short tube, usually tapering, forming the vent of a hose or pipe. (Webster)
2. The front nose-piece of a bellows or a blast pipe for a furnace. (C. and M. M. P.)
3. A short piece of pipe with a flange on one end and a saddle flange on the other end. May be made of cast-iron, cast-steel or wrought-steel. 4. A side outlet attached to a pipe by such means as riveting, brazing, or welding. (Nat. Tube. Co.)

Nubber (Mid.) A block of wood about twelve inches square, for throwing mine cars off the road in case the couplings or ropes break. (Gresley)

Nucleus. A kernel; a central mass or point about which other matter is gathered, or to which an accretion is made. (Webster)

Nudo (Mex.) Knot or button on traction-rope of tramway; coupling. (Dwight)

Nug. 1. (Scot.) The dull sound caused by breaking strata. (Barrowman)
2. (Eng.). A knot; protuberance; lump; block. (Webster)

Nugget. A water-worn piece of native gold. The term is restricted to pieces of some size, not mere 'colors', or minute particles. Fragments and lumps of vein-gold are not called 'nuggets,' for the idea of alluvial origin is implicit. (Min. and Sci. Press, Apr. 17, 1915.) A lump of native gold, silver, platinum, copper, etc. (Roy. Com.)

Nuggeting. Searching for nuggets of gold. (Webster)

Nuggety. Like or resembling a nugget; occurring in nuggets; also abounding in nuggets. (Webster)

Nullah (Hind.). A small stream or brook. Generally a heavy torrent during the rainy season, and a dry, sandy channel at other times (Oldham). Often containing auriferous sands.

Numidian marble. A general name given to some celebrated marbles of cream, yellow, pink, and red colors, found in northern Africa. According to the best authorities the name Numidian is incorrect, the true source of the stone being not Numidia, but the provinces of Africa and Mauritania. The quarries were worked by the ancient Romans. (Merrill)

Nummulite limestone. An Eocene formation made up chiefly of nummulite shells. (Webster)

Nunatak (Eskimo). An insular hill or mountain surrounded by an ice sheet. (Lahee, p. 322)

Nusco (Peru). A mixture of iron and manganese oxides, with foliated talc and quartz, containing gold. (Halse)

Nut coal. An abbreviation for chestnut coal. Also called Nuts.

Nuts. Small coal. (Raymond)

Ñuzco (Peru). 1. Small coal. 2. Ore broken to the size of a walnut. (Halse)

Nystagmus. A rapid involuntary oscillation of the eyeballs. It may be congenital, associated with ocular troubles or of nervous origin (Webster). A disease among miners due to working in poor light. *See* Miner's nystagmus.

O.

Oakum. 1. Hards or tow of flax or hemp, used for calking seams, stopping leaks, etc. 2. The material obtained by untwisting and picking into loose fiber old hemp ropes. (Webster)

Oamaru stone (Aust.). A white, granular limestone found in large quantities in Oamaru, New Zealand, valued as a building stone. (Standard)

Oberbergamt (Pr.). A board or council consisting of six or seven members, which sanctions colliery rules, prescribes as to the duties of inspectors, as related to fiery mines, safety lamps, etc. (Gresley)

Obersteiger (Pr.). An underground overman, who acts under the guidance of the manager. (Gresley)

Oblicuo (Sp.). Oblique. (Halse)

Oblique block. A quarry term applied to a block of stone bounded by three pairs of parallel faces, four of the twelve interfacial angles being right angles, four obtuse, and four acute. (Bowles)

Oblique fault. *See* Fault.

Oblique lamination. Same as Transverse lamination.

Oblique slip fault. *See* Fault.

Obra (Sp.). 1. Work. 2. Mine workings. 3. The narrow prismatic part of a blast-furnace immediately above the crucible (Halse). 4. *Obras de disfrute*, workings from which ore is being extracted. 5. *Obras muertas*, literally, dead work; work done in the country rock. (Dwight)

Obradora buena (Mex.). Rock that breaks well.

Obradora mala (Mex.). Rock that breaks badly.

O'Brien furnace. A roasting furnace of the Herreshof type with central vertical shaft carrying stirring arms. (Ingalls, p. 154)

Obrizo (Sp.). High-grade gold. (Lucas)

Obsequent. Flowing in a direction opposite to that of the dip of the strata or the tilt of the surface: said of some streams and contrasted with Consequent. (La Forge) Called also Reversed stream.

Obsidian. 1. Extrusive igneous rocks which have cooled either without crystallization or with only partial crystallization. (U. S. Geol. Surv.) 2. A general name for volcanic glass. When used alone it implies a rhyolite-glass, but it is now much employed with a prefix as andesite-obsidian, basalt-obsidian. (Kemp)

Obsidiana (Sp.). Obsidian; volcanic glass. (Halse)

Obtuse bisectrix. That axis which bisects the obtuse angle of the optic axes of biaxial minerals. (Dana)

Occidental amethyst. *See* Oriental amethyst.

Occidental diamond (Eng.). A lapidary's term for limpid and colorless varieties of rock crystal when cut and polished. Used in contradistinction to the Oriental or true diamond. (Page)

Occlude. To take in and retain in pores or other openings; to absorb; said especially with respect to the absorbing of gases by certain substances which do not thereby lose their characteristic properties; as charcoal, iron, platinum and palladium occlude large volumes of hydrogen, palladium nearly a thousand times its own volume (Webster). A term used in flotation processes.

Occlusion. The mechanical retention of gases in the pores of solids (Raymond). *See* Occlude.

Occupation. The word used to describe the mode of acquiring rights to mining claims. (Collins *v.* Bubb, 73 Fed. Rept., p. 739)

Occurrence. In geology, the existence or presence of anything or phenomenon in any special position, or in any specified relations to other objects or phenomena, as the *occurrence* of gold in a vein. (Standard)

Ocean coal (Cumb.). Coal seams lying beneath the sea. (Gresley)

Ocellar. Of, or pertaining to, or designating, a type of rock structure characterized by radiated, eyelike aggregates. (Webster)

Ocher. A pulverulent iron oxide usually impure, used as a pigment: brown and yellow ochers consist of limonite, or goethite, and red ocher of hematite. Similar pulverulent oxides of several other metals, also used as pigments, are sometimes called ochers, generally with the name of the metal prefixed, as antimony ocher, cadmium ocher. (La Forge). Also spelled Ochre.

Ocre (Sp.). Ocher. (Dwight)

Octad. An atom or radical that has a valence of eight. (Webster)

Octahedral cleavage. In the isometric system, cleavage parallel to the faces of the octahedron. (La Forge)

Octahedral iron ore. Magnetite. (Webster)

Octahedrite. A tetragonal form of titanium dioxide, TiO_2, in brown, dark blue, or black crystals. (Dana)

Octahedron. In the isometric system, a closed form of eight faces each having equal intercepts on all three axes. (La Forge)

Octavalent. In chemistry, having a valence or combining power of eight. (Standard)

Octibbenite. In mineralogy, a metallic alloy of iron and nickel, unusually rich in the latter element. (Standard)

Odd-knobbing (So. Staff.). Breaking off the coal from the sides in the thick-coal workings. (Gresley)

Odd man (Eng.). One who works by the day at sundry jobs in the mine. (Gresley)

Oddside. A permanent impression or mold of part of a pattern, used by molders in like manner to a false part. *See also* False part. Standard)

Odd work. Work other than that done by contract, such as repairing roads, constructing stoppings, dams, etc. (Gresley)

Odinite. A lamprophyric variety of basalt occurring in dikes in Mt. Melibocus. It has a groundmass of plagioclase and hornblende rods, with phenocrysts of plagioclase and augite. (Kemp)

O'erlayer (Derb.). A piece of wood on which the sieve is placed after washing the ore in a vat. (Min. Jour.)

Oeste (Sp.). West. (Dwight)

Off (No. of Eng.) Worked out; gotten; wrought (Gresley). As the mine is off.

Off-bear. To carry (bricks) from the molding table and deposit on the drying floor. (Standard)

Off-bearer. A workman employed to carry bricks from the molding table and lay them on the ground to dry. (Century)

Off gates (No. of Eng.). Goaf roadways in longwall workings about 120 yards apart. (Gresley)

Off-putter (Eng.) A loader of coal into a vessel at a staith or spout; a colliery agent at a quay. (Webster)

Offset. 1. In surveying, a short distance usually measured at right angles from a line as to a boundary, or to continue a line parallel to itself at some little distance away to avoid an obstruction or the like. 2. A short drift or crosscut driven

from a main gangway or level. 3. The horizontal distance between the outcrops of a dislocated bed. (Lindgren, p. 120)
4. A spur or minor branch from a principal range of hills or mountains. (Century)

Offset staff. In surveying, a rod, usually ten links long, used in measuring short offsets. (Webster)

Offtake. 1. (Eng.) The raised portion of an upcast shaft above the surface, for carrying off smoke, steam, etc. 2. The length of boring rods unscrewed and taken off at the top of the bore hole, depending upon the height of the head-gear and depth of the well. (Gresley)
3. (Scot.) A deduction from workmen's wages for house rent, coal, etc. (Barrowman)
4. A channel for taking away air or water; also the point of beginning of such a channel. (Webster)

Offtake drift; Offtake level. (Scot.) A water level driven from the surface to a point in a pumping shaft where the water is delivered. (Barrowman)

Offtake joint (Eng.). The joint by which the bucket is fastened to the rods. (Bainbridge)

Offtake rods (Eng.). Auxiliary wooden rods at the top and bottom of a winding shaft, by means of which the cages are guided and steadied during decking (Gresley). *See also* Offtake, 2.

Oficial de albañil (Sp.). A journeyman bricklayer. (Min. Jour.)

Oficial de carpintero (Sp.). A journeyman carpenter. (Min. Jour.)

Oficina. 1. (Sp.) An office. A work shop. 2. (Mex.) A furnace containing 12 or more clay retorts, six on each side, for reducing quicksilver ores. 3. (Chile) Nitrate works. 4. *O. de concentración*, concentration works; *O. de fundición*, smelting works; *O. de muestras*, sampling works. (Halse)

Ogie (Scot.). The space before the fire in a kiln. Called also Killogie. (Standard)

O'Hara furnace. A horizontal, double-hearth furnace for calcining sulphide ores. (Hofman, p. 186; Peters, p. 200)

Ohm. The practical unit of electrical resistance, being the resistance of a circuit in which a potential difference of one volt produces a current of one ampere. (Webster)

Ohm's law. The law that the strength or intensity of an unvarying electrical current is directly proportional to the electromotive force, and inversely proportional to the resistance of the circuit. The law does not hold for alternating currents unless modified so as to include the effects of counter electromotive force. (Webster)

Oído (Sp.). 1. Ear. 2. The orifice left in the tamping for the insertion of the fuse. (Halse)

Oikocryst. The matrix or larger crystal of a poikilitic fabric. (Iddings, Igneous Rocks, p. 202)

Oil. Any of a large class of unctuous combustible substances, which are liquid, or at least easily liquefiable on warming, and soluble in ether, but not in water. (Webster) This term includes: (a) fatty oils and acids; (b) essential oils, mostly of vegetal origin, such as encalyptus and turpentine, and (c) mineral oils, such as petroleum products, including lubricating oils. A term used in the flotation process. (Min. and Sci. Press)

Oil box. A box for oil, as for storage or lubrication. (Webster)

Oiler. 1. An oil which provides a film around a mineral particle (Megraw). A term used in flotation. 2. An oil well. 3. An oil can. 4. An engine-room greaser. (Webster)

Oil field. A district containing a subterranean store of petroleum of economic value. (Webster)

Oil flotation. A process in which oil is used in ore concentration by flotation. *See* Flotation process.

Oil car. 1. A box car with open side for carrying oil in barrels. 2. A platform car with tanks for carrying oil in bulk. Commonly called Tank car. (Century)

Oildag. Deflocculated graphite suspended in oil, used for lubricating. (Bacon)

Oil derrick. A towerlike frame used in boring oil wells, to support and operate the various tools. (Standard)

Oil fuel. Refined or crude petroleum, shale oil, grease, residuum tar, or similar substances, used as fuel. (Century)

Oil gage. An instrument of the hydrometer type arranged for testing the specific gravity of oils; an oleometer. (Century)

Oil gas. Illuminating gas, or heating gas, made by distilling oil in closed retorts. (Standard)

Oil-gas tars. Tars produced by 'cracking' oil vapors in the manufacture of oil gas. (Bacon)

Oil jack. A pitcher-shaped metal vessel for heating oil. (Standard)

Oil-line pump. A pump for forcing crude petroleum along a pipe line. (Standard)

Oil of paraffin. A colorless to yellowish, limpid oil, having a specific gravity of about 0.880 and not boiling below 360°. It is composed principally of high-boiling hydrocarbons of the C_nH_{2n+2} series, and is obtained from the petroleum fraction boiling above 300°, the product being refined and decolorized. It is used in pharmacy, in ointments, and as the base for various coatings insoluble in water. (Bacon)

Oil of talc. A nostrum of calcined talc, famous in the 17th century as a cosmetic. (Webster)

Oil of vitriol. Sulphuric acid.

Oil pits. *See* Hand-dug wells.

Oil pool. An accumulation of oil in sedimentary rock that yields petroleum on drilling. The oil occurs in the pores of the rock and is not a pool or pond in the ordinary sense of these words. (U. S. Geol. Surv., Bull. 613, p. 184)

Oil process. *See* Concentration, *also* Flotation process.

Oil pulp. An aluminum soap, consisting of aluminum salts of the fatty acids, chiefly oleic, palmitic, and stearic acids. It is dissolved in mineral oil to form an oil thickener. (Bacon)

Oil sand. Porous sandstone from which petroleum is obtained by drilled wells. (Webster)

Oil saver. An appliance affixed to the mouth of an oil well when the latter requires deepening, although still flowing in small quantities. It consists of a cap fitted to the top of the well casing and having a lateral pipe communicating with a reservoir for the oil. (Mitzakis)

Oil shale. Shale containing such a proportion of hydrocarbons as to be capable of yielding mineral oil on slow distillation (Gresley). *See* Shale, Shale oil, Pumpherston shale, Broxburn oil shale, Kerogen and Bituminous shales. (Bacon)

Oil smellers. Men who profess to be able to indicate where oil-bearing strata are to be found, and locate places for successful well boring, by the sense of smell.

Oil spring. A spring of petroleum, maltha, or other hydrocarbon, with or without admixture of water.

Oilstone. A fine-grained stone used for sharpening edged tools or other similar metal surfaces.

Oilstone powder. Pulverized oilstone used with oil for grinding and polishing metal surfaces. (Standard)

Oil-temper. To harden steel by chilling in oil after heating. (Webster)

Oil well. A dug or bored well, from which petroleum is obtained by pumping or by natural flow. (Raymond)

Oil-well packing. A packing inserted between the pipe and the interior surface of the boring in an oil well to keep surface water or water from the sides of the hole from running into the well, and to prevent oil in some wells from being forced out around the pipe by a pressure of gas. (Century)

Oily; greasy. These are substantially equivalent terms. All oils are greasy. Greasiness suggests more viscidity than oiliness. A term used in the flotation process. (Min. and Sci. Press)

Oil zone. A formation that contains capillary or supercapillary voids, or both, that are full of petroleum that will move under ordinary hydrostatic pressure. (Meinzer)

Ojal (Sp.). A loop tied to the rope of a hand winch, when used for raising and lowering men. (Halse)

Ojo (Sp.). **1.** Eye. **2.** A bunch of ore in a lode; a small irregular deposit **3.** Mesh. **4.** Peephole of a blast furnace. **5.** *O. de agua*, a spring that spouts water (Halse). *O. de polvillo*, a spot of rich ore. (Min. Jour.)

Ojosa (Mex.). Honeycombed structure. (Dwight)

Okonite: **1.** A compact fibrous calcium silicate, $H_2CaSi_2O_6+H_2O$. (Dana) **2.** A vulcanized mixture of ozocerite and resin with caoutchouc and sulphur, used as an insulating material for electric conductors. (Century)

Old. Having reached the stage of decreasing vigor and efficiency of action or of increasing simplicity of form and reduction of relief: said of streams, and of land forms. (La Forge)

Old age. That stage in the development of streams, and land forms when the processes of erosion are decreasing in vigor and efficiency or the forms are tending toward simplicity and subdued relief. *Compare* Youth and Maturity. (La Forge)

Old man. 1. Ancient workings, goaves. (Raymond)
2. (Scot.) A rocking center to guide pump rods at an angle. (Barrowman)

Old men. The persons who worked a mine at any former period of which no record remains. (Raymond)

Old red sandstone. A thick group of reddish sandstone, conglomerates and shales, of nonmarine origin, which constitute the Devonian system in parts of Great Britain and are regarded as equivalent in age to the normal marine Devonian strata. In North America the name was formerly applied to rocks of the Catskill group, which display some striking analogies to the Old Red Sandstone of Europe. (La Forge)

Old sand. A molding-sand rendered friable and porous by frequent high heating. (Standard)

Old silver. Silver made to appear old by the application of graphite and grease. (Standard)

Old waste (Scot.). Old or abandoned workings. (Barrowman)

Olefiant gas. Ethylene, a colorless inflammable gaseous compound, C_2H_4, having a suffocating odor and contained in coal gas: bicarbureted hydrogen. (Standard)

Oleic acid. The fatty acid contained in olive-oil combined with cresoline. Although called 'acid,' it is an oily substance and functions as oil in flotation operations; it is contained in most mixed oils and fats, from which it is obtained by saponification with an alkali. From L. *oleum*, oil. (Rickard)

Olho (Braz.). 1. A vug or druse. 2. A bunch of ore. (Halse)

Oligist. A crystallized variety of hematite. Called also Oligist iron. (Webster)

Oligocene. The second of the epochs into which the Tertiary period is at present ordinarily divided. Also the series of strata deposited during that epoch. (La Forge)

Oligoclase. A variety of feldspar intermediate between albite and anorthite, but more nearly the composition of the former. (Dana)

Oligonite. A variety of siderite containing manganese carbonate. (Standard)

Oligon spar. Same as Oligonite.

Oligosiderite. A meteorite which is characterized by the presence of but a small amount of metallic iron. (Webster)

Olivenite. A basic copper arsenate, $4CuO.As_2O_5H_2O$ (Dana). Also called Wood copper.

Olive ore. *See* Olivenite.

Oliver continuous filter. A revolving drum prepared as a leaf-filtering surface and divided into compartments, each of which is connected to a vacuum pipe and to a pipe for admitting compressed air. The drum is partly immersed in a tank or box of thick pulp and revolves at a slow rate of speed. The vacuum causes ¼ to ½ in. slime cake to form; after emerging, the solution is sucked out of the adhering cake; a wash is then given and displaced by air as far as possible; and finally the cake is dropped by compressed air. (Liddell)

Olivine; Chrysolite; Peridot. An orthosilicate of iron and magnesium, $2(Mg.Fe)O.SiO_2$. Used as a gem. (U. S. Geol. Surv.) The name of the mineral is prefixed to the names of many rocks that contain it. Olivine is of especial importance in this respect, as its presence marks a more basic development in the rocks, which have it as contrasted with those which lack it. (Kemp)

Olivine diabase. A diabase containing olivine. (Standard)

Olivine gabbro. A gabbro containing olivine. (Standard)

Olivine norite. A variety of norite containing olivine. (Standard)

Olivinoid. An olivine-like substance found in meteorites. (Standard)

Olivinophyre. Porphyry containing olivine phenocrysts.

Olla. 1. (Sp.). A porous, earthen jar in which drinking water is cooled by evaporation from the outer surface; used in tropical countries (Standard.) 2. (Mex.) A slag pot. (Dwight)

Ollero. 1. (Mex.) A slag-pot puller. (Dwight). 2. A potter. (Halse)

Olletas. (Sp. Am.) Hollows in river beds. (Lucas)

Ollite. Potstone; a variety of impure soapstone.

Omnibus. In glass-making, a sheet-iron cover to protect from drafts the glass articles in a leer. (Standard)

Omphacite. A greenish, vitreous variety of pyroxene that is a common constituent of the garnet rock, eclogite. (Dana)

On air (Scot.). Said of a pump when air is drawn at each stroke. (Barrowman)

Oncosimeter. An instrument for determining the specific gravity of a molten metal by the immersion of a ball made of another metal and of known weight. (Standard)

Oncost. 1. (Scot.) All charges for labor in getting mineral other than the miners' wages; payment to the collier in addition to the rate per ton. (Barrowman)
2. (Scot.) Dead-work expenses, being costs incurred at a mine, whether minerals are raised or not. (Gresley)

Oncost-men (Scot.). All workmen, other than miners, paid by day's wages. (Barrowman). A company man.

One way (So. Staff.). A particular class of house coal. (Gresley)

One-track tipple. A tipple having but one railroad track beneath it. (Steel)

Onico; (or Onique (Sp.). Onyx. (Lucas)

Onicolo. A variety of onyx used in making cameos, being characterized by a blish tinge, produced by a thin layer of white over the black. (Standard)

Onofrite. Sulpho-selenide of mercury, Hg(S,Se). Contains 81 to 82 per cent of mercury. (U. S. Geol. Surv.)

On plane (Scot.). In a direction at right angles to, or facing, the plane or main joints. (Barrowman)

Onsetter. The man who places cars on or takes them off the mine cage. *See* Bottomer; *also* Cager. (Gresley)

Onsetting machine (Eng.). A mechanical apparatus for loading cages with the full tubs and discharging the empties, or vice versa, at one operation. (Gresley)

On shift (Scot.). A workman or working place is said to be on shift, or on shift wages when the work is not let under contract, but paid for by day's wages. (Barrowman)

On sights. Following sights placed by a surveyor. (Steel)

On-the-run (Penn.). The ability to work a seam of coal that has sufficient inclination to cause the coal, as worked toward the rise, to fall by gravity to the gangways for loading into cars, is called working coal on-the-run. (Gresley)

On-the-solid. 1. Applied to a blast hole extending into the coal farther than the coal can be broken by the blast. 2. That part of a blast hole which can not be broken by the blast. (Steel)
3. A practice of blasting coal with heavy charges of explosives, in lieu of undercutting or channeling.

Onychite. An alabaster, or calcite (stalagmite), with yellow and brown veins, carved by the ancients into vases, etc. (Standard)

Onyx. A cryptocrystalline variety of quartz, made up of different colored layers, chiefly white, yellow, black, or red. Not found in commercial quantity in United States. (U. S. Geol. Surv.)

Onyx marble (including Mexican onyx). Calcite somewhat resembling true onyx in appearance and used as an ornamental stone. Is usually formed as stalactites, stalagmites, vein filling, or spring deposits. (U. S. Geol. Surv.)

Onza de oro (Sp.). A large gold coin struck during the nineteenth century by some of the South American republics, and by Spain in the latter part of the eighteenth century. It was worth about sixteen dollars. Also called Doblon; Doubloon. (Century)

Oölite. 1. A variety of limestone consisting of round grains like the roe of a fish. The name is derived from two Greek words, which mean, "Egg-stone." (Thompson)

2. The upper part of the Jurassic system in England and some other parts of Europe. (Webster)

Oölitic. Characteristic of, pertaining to, of the nature or texture of, or composed of oölite. (La Forge)

Oolly (E. Ind.). A lump of steel, as Wootz steel when removed from the crucible. (Standard)

Ooze; Oaze. 1. A soft slimy, sticky mud. (Power)
2. To exude or give out slowly. (Webster)

Opacite. A noncommittal term, less current than formerly, for microscopic, opaque grains observed in thin sections of rocks. They are generally regarded today as chiefly magnetite dust. (Kemp)

Opal. Hydrous silica, SiO_2+H_2O. When it shows a play of colors, or opalescence, it becomes the gem stone or precious opal of commerce, known as 'fire opal.' (U. S. Geol. Surv.)

Opalescence. A milky or pearly reflection from the interior of a mineral. (Dana)

Opalescent. Resembling opal. (Winchell)

Opaline. In glass making, a translucent, milky variety of glass; fusible porcelain; milky glass. Called also Hot-cast procelain. (Standard)

Opalized wood. Wood petrified by siliceous earth, and acquring a structure similar to the simple mineral called opal (Comstock). *See* Wood, 2.

Opal jasper. Common opal with the color of yellow jasper. (Chester)

Ópalo (Sp.). Opal; *O. de fuego*, fire opal; *O. nobles*. precious opals. (Halse)

Opencast. 1. A working in which excavation is performed from the surface, as in quarrying. 2. Exposed to the air like a quarry; as *opencast* working; a deposit worked *opencast* (Webster). Commonly called Open-cut; Open-pit.

Open connected. Applied to dredges in which a link is interposed between the buckets. (Weatherbe)

Open-crib timbering. Shaft timbering with cribs alone, placed at intervals. (Raymond)

Open-cut. 1. (Eng.) To drive headings out, or commence working in the coal, etc., after sinking the shafts. (Gresley)
2. (Scot.). To commence longwall working. (Barrowman)
3. To increase the size of a shaft when it intersects 'drift' so as to form a puddle wall behind the sets of timber. (Duryee)
4. A surface working, open to daylight (Raymond). Also called Opencast; Open-pit.

Open-cut system. *See* Overhand stoping; Stripping.

Open fault. *See* Fault.

Open-front. The arrangement of a blast furnace with a fore-hearth. (Raymond)

Open-hearth. *See* Furnace. The form of regenerative furnace of the reverberatory type used in making steel by the Martin, Siemens, and Siemens-Martin processes. (Century)

Open-hearth process. A process for manufacturing steel, either acid or basic, according to the lining of the reverberatory furnace, in which selected pig iron and malleable scrap iron are melted, with the addition of pure iron ore. The latter, together with the air contributes to the oxidation of the silicon and carbon in the melted mass. The final deoxidation is sometimes produced by the addition of a small quantity of aluminum or of ferromanganese, which at the same time desulphurizes and recarburizes the metal to the required extent. (Goesel)

Open hole. Coal or other mine workings at the surface or outcrop (Gresley). Also called Opencast; Open-cut; Open-pit.

Opening. 1. A widening out of a crevice, in consequence of a softening or decomposition of the adjacent rock, so as to leave a vacant space of considerable width. (Century)
2. A short heading driven between two or more parallel headings or levels for ventilation. (Gresley)
3. An entrance to a mine.

Openings. The parts of coal mines between the pillars, or the pillars and ribs. (Raymond)

Opening shot. In shooting off the solid, the first shot fired in a straight face of coal. Called also Wedging shot or Gouging shot.

Open light. A naked light (Gresley). Not a safety light.

Open mold. A mold without cover, in which objects like ingots are cast: distinguished from Close mold. (Standard)

Open-off. 1. (Eng.) To begin the longwall system from the shaft pillar, or the far end of the royalty, or from any headings previously driven out for the purpose of commencing such system. (Gresley)
2. To start any new working, as a heading, entry, gangway, room, etc., from another working, as a slope, gangway, etc.

Open pit mine. *See* Open-cut, *also* Opencast.

Open-pit quarry. A quarry in which the opening is the full size of the excavation. One open to daylight. (Bowles)

Open rock. Any stratum capable of holding much water, or conveying it along its bed by virtue of its porous or open character. (Gresley)

Opens. Large caverns. (Raymond)

Open-sand castings. Castings made in molds simply excavated in sand, without flasks. (Raymond)

Open sand-mold. A process of founding without any cope or top to the mold: used for heavy objects. (Standard)

Openset (Scot.). An unfilled space between pack walls. (Barrowman). *See also* Cundy.

Open-shell auger (Eng.). A coal-boring tool for extracting clay and other débris from the hole. (Gresley)

Open shop. A shop, or mine, where the union price is paid, but where the workmen are not all union men.

Open-stope and filling. *See* Overhand stoping.

Open-stope method. *See* Overhand stoping.

Open-top tubbing. A length of tubbing having no wedging crib on the top of it. (Gresley)

Open-work. 1. A mine working that is open to the sky; an opencast. (Webster)
2. (So. Staff.) A coal quarry (Min. Jour.). *Also* Open; Open-pit; Open-cut.

Open-working. Surface mining; quarrying; open-pit mining.

Operario (Mex.). A working miner. (Dwight)

Operator. (Penn.) The person, whether proprietor or lessee, actually operating a mine. (Raymond)

Ophicalcite. A crystalline limestone, spotted with serpentine. (Kemp)

Ophiolite. Brogniart's name for the serpentines. It is also employed in America in the sense of ophicalcite as above given. (Kemp)

Ophite. 1. A name given in 1798 by the Abbé Palassou to a green rock of the Pyrenees. It was later recognized to be composed of feldspar and hornblende, and still later was determined by Zirkel to be a uralitized diabase. The name has chief significance today because used to describe the textural peculiarity of some diabases. Strictly speaking an ophitic texture is one in which rod-like or lath-shaped, automorphic plagioclase feldspars are involved in augite, as it were, in a paste, so as to form a variety of poicilitic texture. (Kemp)
2. A variety of marble colored green by serpentine. Called also Verd antique. *See also* Ophicalcite. (Standard)

Ophitic. Having earlier-formed euhedral crystals of labradorite surrounded by later-formed crystals of augite: said of the texture of some diabases. (La Forge)

Optical character. The designation as to whether optically positive or optically negative (A. F. Rogers). Said of minerals.

Optical constants. In optical mineralogy, the indices of refraction, axial angle, extinction angle, etc. (A. F. Rogers)

Optic angle. In a biaxial crystal, the angle between the optic axes. (Standard)

Optic axes. Those directions in anisotropic crystals along which there is no double refraction. (Dana)

Option. A privilege secured by the payment of a certain consideration for the purchase, or lease, of mining or other property, within a specified time, or upon the fulfilment of certain conditions set forth in the contract.

Opus incertum. Masonry of small stones set irregularly in mortar. (Standard)

Opus lateritium. Brickwork or tile-work in horizontal courses with broken joints. (Standard)

Opus reticulatum. Recticulated masonry. (Standard)

Opus tessellatum. Mosaic composed of small cubes of marble, glass, or clay. (Standard)

Orange sand. A deposit of sand, gravel, and pebbles, containing bowlders of northern Paleozoic rocks, occurring in the Mississippi valley: a diluvial deposit of the Champlain or quarternary epoch. (Standard)

Orang gulla (Sumatra). Miners. (Lock)

Orangite. A bright, orange-yellow variety of thorite (Chester). *See* Thorite, 1.

Orbicular. Containing spheroidal aggregates of megascopic crystals, generally in concentric shells composed of two or more of the constituent minerals: said of the structure of some granular igneous rocks, as corsite. (La Forge) *See* Kugel, *also* Spheroidal. (Kemp)

Orbicular granite. A granite containing numerous rounded segregations of minerals, chiefly dark silicates. (Ries)

Orbite. A name proposed by Chelius for certain diorite dikes near Orbeshöhe, Hesse, of porphyritic texture and having large phenocrysts of hornblende, biotite and plagioclase. (Kemp)

Orchard-heating oil. A dark oil from California petroleum, possessing a gravity of 26° to 28° Bé.; it is also termed smudge oil, and is used in the orange and lemon groves to prevent frost from injuring the trees. (Bacon)

Ordenanzas de minería (Mex.). The *O. de Minería*, or Mining Ordinances, came into operation in Mexico in 1784, and were replaced by the (first) Código de Minas in 1884. (Halse)

Ordinarios (Mex.). Low-grade ores, (Dwight)

Ordinary ray. That ray of polarized light which, in a doubly refracting medium, follows the usual law as to the constant ratio between the sines of the angles of incidence and refraction. (Dana)

Ordovician. The second of the periods comprised in the Paleozoic era, in the geologcal classification now generally used. Also the system of strata deposited during that period. (La Forge)

Ore. 1. A natural mineral compound, of the elements of which one at least is a metal. The term is applied more loosely to all metalliferous rock, though it contain the metal in a free state, and occasionally to the compounds of non-metallic substances, as sulphur ore (Raymond). Also, material mined and worked for nonmetals, as pyrite is an *ore* of sulphur (Webster)

A mineral of sufficient value as to quality and quantity which may be mined with *profit.* (Ihlseng)

A mineral, or mineral aggregate, containing precious or useful metals or metalloids, and which occurs in such quantity, grade, and chemical combination as to make extraction commercially *profitable.* (Robert Peele, Min. and Met. Soc. of America, *Bull.* 64, p. 257)

A metalliferous mineral, or an aggregate of metalliferous minerals, more or less mixed with gangue, which from the standpoint of the miner, can be won at a profit, or from the standpoint of a metallurgist can be treated at a profit. The test of yielding a metal or metals *at a profit* seems to me, in the last analysis, to be the only feasible one to employ. (J. F. Kemp, *Trans.*, Canadian Min. Inst., 1909, p. 367)

2. (Corn.). Copper ore; tin ore being spoken of in Cornwall as tin.

(Joplin, Mo.) A lead, zinc, or lead-zinc concentrate obtained from milling. The crude ore is called *dirt.*

3. In metallurgy, a soft but compact variety of hematite used for the bottom of puddling furnaces. (Webster)

Oreala (Sp.). A kind of clay used in the manufacture of pottery in British Guiana. (Standard)

Ore bands. Zones of rock rich in ore, occurring in belts of fahlbänder. (Power)

Ore beds. Metalliferous aggregations occurring between (or in) rocks of sedimentary origin. (Power)

Ore bins. Receptacles for ore awaiting treatment or shipment.

Ore blocked out. Ore exposed on three sides within a reasonable distance of each other. (H. C. Hoover, p. 17)

Ore body. Generally a solid and fairly continuous mass of ore, which may include low-grade and waste as well as *pay ore*, but is individualized by form or character from adjoining country rock.

Ore-bridge. A large electric gantry-type of crane which, by means of a clamshell bucket, stocks ore or carries it from the stock pile into bins or larry car on trestle. (Willcox)

Ore-bridge bucket. A clamshell grab bucket of 5 to 7½ tons capacty. (Willcox)

Ore car. A mine car for carrying ore or waste rock. (Weed)

Ore channel. The space between the walls or boundaries of a lode which is occupied by ore and veinstone (Power). Also called Lode country.

Ore chute. An opening in ore or rock through which ore is dropped downward, and frequently used for ore bins and pockets, underground. A trough or lip at the bottom of a bin for conveying ore to a car, conveyor, etc.

Ore crusher. A machine for breaking up masses of ore, usually previous to passing through stamps or rolls.

Ore currents. Aqueous solutions of metalliferous minerals, circulating through the earth's crust.

Ore delfe. 1. Ore lying underground. 2. Right or claim to ore from ownership of land in which it i found. (Century)

Ore developed. Ore exposed on four sides in blocks variously prescribed. *See* Positive ore, *also* Proved ore. (H. C. Hoover, p. 17)

Ore developing. Ore exposed on two sides. *See* Probable ore. (H. C. Hoover, p. 17) First class, blocks with one side hidden; second class, blocks with two sides hidden; third class, blocks with three sides hidden. (Philip Argall, Min. and Met. Soc. of Am., Bull. 64, p. 260)

Ore district. A combination of several ore deposits into one common whole or system. (Power)

Ore drag (Corn.). A drag made of green oxhides for bringing ore down the mountains on snow. The ore is sewed up in sacks of 100 pounds each, then placed on the hide, which has loops around the edge, and when the desired number of sacks are in position a rope is run through the loops and drawn taut, with the hair of the skin outwards. (Crufutt)

Ore-dressing. The cleaning of ore by the removal of certain valueless portions as by jigging, cobbing, vanning, and the like. *See* Concentration.

Ore dump. A heap or pile of ore at the tunnel or adit mouth, the top of shaft, or other place. (Weed)

Ore expectant. The whole or any part of the ore below the lowest level or beyond the range of vision. *See* Possible ore, *also* Prospective ore (H. C. Hoover, p. 17). The prospective value of a mine beyond or below the last visible ore, based on the fullest possible data from the mine being examined, and from the characteristics of the mining district. (Philip Argall, Min. and Met. Soc. of Am., Bull. 64, p. 260)

Ore faces. Those ore bodies that are exposed on one side, or show only one face, and of which the values can be determined only in a prospective manner, as deduced from the general condition of the mine or prospect. (Min. and Met. Soc. of Am., Bull. 64, p. 259)

Oregon sledge. A broad-faced sledge hammer. (Willcox.)

Ore-hearth. 1. A small, low fireplace surrounded by three walls, with a tuyère at the back. Three important types are: (*a*) Scotch ore-hearth, (*b*) American water-back ore-hearth, and (*c*) Moffet ore-hearth, used in smelting. (Hofman, p. 117)

2. (Eng. and Scot.) A small blast furnace for smelting lead; a blast hearth. (Standard)

Ore-hearth process. A process for the extracton of lead in which lead ore, mixed with fuel, is treated on a roasting hearth.

Orei. A quarry term applied to granite that has been rendered valueless by the alteration of its aegirite particles. (Perkins)

Ore in sight. A term frequently used to indicate two separate factors in an estimate, namely: (*a*) Ore blocked out, that is, ore exposed on at least three sides within reasonable distance of each other; (*b*) Ore which may be reasonably assumed to exist, though not actually blocked out; these two factors should in all cases be kept distinct, because (*a*) is governed by fixed rules, while (*b*) is dependent upon individual judgment and local experience. The expression "ore in

sight" as commonly used in the past, appears to possess so indefinite a meaning as to discredit its use completely. The terms Positive ore, Probable ore, and Possible ore are suggested. (Min. and Met. Soc. of Am., Bull. 64, pp. 258 and 261)

Ore leave. The value of the right to dig and take ore; also, the value of ore in place. (Coleman's Appeal, 62 Pennsylvania, State, p. 279)

Ore mill. A stamp mill; a concentrator.

Orendite. An aphanophyric igneous rock containing small phenocrysts of phlogopite in a groundmass composed essentally of leucite, sanidine, diopside, and phlogopite. (La Forge) The name was proposed by Whitman Cross, for the peculiar leucitic rocks at Orenda Butte in the Leucite Hills, Wyo. They contain leucite and sanidine, in about equal amounts, with phlogopite and diopside as essentials. A peculiar amphibole is also present. The rock is a leucite-phonolite as the latter term is used by older writers, but the objection to calling any rock a phonolite which lacks nephelite, led to the name orendite. *Compare* Madupite and Wyomingite. (Kemp)

Ore partly blocked. Those ore bodies that are only partly developed, and the values of which can be only approximately determined. (Min. and Met. Soc. of Am., Bull. 64, p. 259) *See* Probable ore.

Ore plot. A place where the dressed ore is kept. (Davies)

Ore pocket. An isolated and limited deposit of rich ore. (Standard)

Ore process. In steel making the Siemens process. *See* Open-hearth.

Ore reserve. *See* Reserve.

Ore separator. A cradle, frame, jigging-machine, washer, or other device or machine used in separating the metal from broken ore, or ore from worthless rock. (Standard)

Oreshoot. A large and usually rich aggregation of mineral in a vein. It is a more or less vertical zone or chimney of rich vein matter extending from wall to wall, and has a definite width laterally. Sometimes called Pay streak, although the latter applies more specifically to placers.

Ore stamp. A machine for reducing ores by stamping. The most familiar form is the stamp battery, and the latest the powerful steam stamp. (Standard)

Ore washer. A machine for washing clay and earths out of earthy brown-hematite ores (Raymond). The log washer is a common type.

Ore zone. A large deposit of ores or minerals in place (Duryee). *See* Zone, 2; Mineralized zone, and Vein.

Organale (Colom.). An alluvial deposit intercalated between stones or bowlders, rendering it difficult and dangerous to work. (Halse)

Organic. 1. In chemistry, pertaining to or designating a branch of chemistry treating in general of the compounds produced in plants and animals, and of many carbon compounds of artificial origin; contrasted with inorganic. (Webster)
2. Having organs for carrying on vital processes. Animals and plants are thus organized as distinguished from minerals or inorganic substances. When these organs or organic structures become mineralized they are fossils, or organic remains. (Roy. Com.)

Organic deposits. Rocks and other deposits formed by organisms or their remains. (A. F. Rogers)

Organpipe coral. A tubiporoid coral consisting of cylindrical tubes placed side by side and united by horizontal floorlike expansions. (Standard)

Orichalc. Under the Roman empire, an alloy of copper and zinc, resembling gold in appearance; brass. There was also a white orichalc. (Standard)

Orichalceous. Having a color between gold and brass; of, or pertaining to, orichalc. (Standard)

Oriental. 1. Frequently used in the same sense as 'precious' when applied to minerals, from an old idea that gems came principally from the East, *e. g.*, Oriental amethyst, Oriental chrysolite, Oriental emerald, Oriental topaz, all of which are varieties of sapphire. (Power)
2. Specially bright, clear, pure, and precious; said of gems. (Standard)

Oriental agate. Understood to be all the most beautiful and translucent sorts of agate. (Power)

Oriental amethyst. Strictly speaking, a variety of sapphire, but the term is applied to any amethyst of exceptional beauty. (Power)

Oriental emerald. A green variety of corundum. (A. F. Rogers)

Oriental garnet. Precious garnet. (Webster)

Oriental powder. An explosive consisting of a mixture of gamboge with potassium nitrate and chlorate. (Webster)

Oriental ruby. The true ruby, a variety of corundum. (A. F. Rogers)

Oriental sapphire. The true sapphire. a variety of corundum. (A. F. Rogers)

Oriental topaz. A yellow variety of corundum, Al_2O_3. (Dana)

Orientation. 1. In surveying, the rotation of a map (or instrument) until the line of direction between any two of its points is parallel to the corresponding direction in nature. (Webster). 2. The placing of a crystal in the conventional attitude, so as to show its symmetry and the forms to which its faces belong. (La Forge)

Oriente (Sp.). East. (Dwight)

Origin. The source or ground of the existence of anything, either as cause or as occasion; that from which a thing is derived or by which it is caused; especially that which initiates or lays the foundation (Standard). As *Origin* of Ore deposits.

Original. Charistic of or existing in a rock at the time of its formation: said of minerals, textures, etc., of rocks; essentially the same as Primary 1, and contrasted with Derived or Secondary 1. (La Forge)

Órín (Sp.). Iron rust. (Lucas)

Oriskany sandstone. A sandstone occurring in the Devonian age in the United States.

Orito (Colom.). A trace of gold found in the *batea*. (Halse)

Ormolu. 1. An alloy of copper, zinc, and tin used for cheap jewelry, chandeliers, etc. 2. Leaf gold ground and used as a pigment for bronzes, brasses, or other objects to be gilded. (Standard)

Ornamental brick. A somewhat broad term applied to front brick, that are either of some form other than that of a rectangular prism or, that have the surface ornamented with some form of design. (Ries)

Ornoite. A dioritic rock from the Swedish locality of Ornö. It contains prevailing oligoclase, with some hornblende and very subordinate microcline and orthoclase. The accessories are apatite, magnetite, pyrite, titanite, and a little prehnite. The name was given by A. Cederstrom. (Kemp)

Oro (Sp.). Gold; *O. bajo*, low-grade ore; *O. corrido*, alluvial gold; *O. crespo*, gold found at a distance from the main deposit; *O. cristalizado*, crystallized gold; *O. de aluvión*, placer gold (Lucas); *O. de copela*, fine gold (Min. Jour.); *O. de corte*, gold extracted from large placer workings (Lucas); *O. de escama*, spangle gold; *O. de espuma*, float gold; *O. de lavadero*, wash gold; *O. de ley*, high-grade gold; *O. de molino*, gold obtained by milling; *O. de monte*, gold found at a distance from the main deposit; *O. de recogida*, gold from various mines; *O. de veta*, lode gold; *O. empolvado*, gold dust (Min. Jour.); *O. en hojas*, leaf gold; *O. fino*, fine gold; *O. libre*. free gold; *O. molido á mano*, gold obtained by hand crushing; *O. nino*, float gold; *O. verde*, green gold. (Lucas)

Oroche (Mex.). 1. Low-grade or yellowish silver. 2. Bullion containing gold and silver. Doré (Dwight). 3. *O. natural*, native auriferous silver. (Halse)

Orogeny. The process of mountain building. (Webster)

Orography; Orology. That branch of physical geography which treats of mountains and mountain systems. (Webster)

Oroide. An alloy, chiefly of copper and zinc, or tin, resembling gold in color and brilliancy, and used in making cheap jewelry. (Webster)

Orology. *See* Orography.

Orometer. A form of aneroid barometer.

Oronite. An enamel paint for protecting metal surfaces from the action of hot vapors.

Orpailleur (Fr.). A gold washer. (Davies)

Orpiment. Arsenic trisulphide, As_2S_3, containing 61 per cent arsenic. (Dana)

Orrillaje (Mex.). Sheet lagging. (Dwight)

Orthite. *See* Allanite.

Ortho axis; Orthodiagonal. In the monoclinic system, the axis that is perpendicular to the other two axes. (La Forge)

Orthoclase. The monoclinic potash feldspar, $K_2O.Al_2O_3.6SiO_2$. Contains 16.9 per cent potash, K_2O. *See* Feldspar (U. S. Geol. Surv.).

Orthoclastic. Cleaving in directions at right angles to each other. (Webster)

Orthodome. In the monoclinc crystallographic system, a dome parallel to the orthoaxis. (La Forge)

Orthofelsite. A name suggested by J. J. H. Teall for porphyritic rocks with felsitic groundmass, and phenocrysts of orthoclase. (Kemp)

Orthogneiss. **1.** A gneiss formed by the metamorphism of an igneous rock. **2.** A gneissic igneous rock whose structure is original and is due to flowbanding or to segregation while the rock was solidifying. (La Forge)

Orthophyre. Orthoclase porphyry or porphyry proper (Kemp). Syenite porphyry. (Standard)

Orthopinacoid; Orthopinacoidal. The pinacoid parallel to the orthodiagonal. (Standard)

Orthoprism. A monoclinic prism whose orthodiagonal intercept is greater than unity. (Standard)

Orthorhombic system. In crystallography, that system of crystals whose forms are referred to three unequal mutually perpendicular axes; also called Prismatic, Rhombic, and Trimetric.

Orthosilicate. A salt of orthosilicic acid: applied to minerals. Called also Unisilicate. (Standard)

Orthosilicic acid. A compound, H_4SiO_4, known chiefly by its salts found in minerals. (Standard)

Orthose. A name for the whole feldspar family (1801), before it was divided into separate species. (Chester)

Orthotomous. Having the two cleavages at right angles to each other (Standard). Same as Orthoclastic.

Oryctogeology. The classification and arrangement of fossils. (Standard)

Oryctognosy. The description and systemmatic arrangement of minerals; mineralogy. (Century)

Oryctology. The science of fossils or whatever is dug from the earth; now separated into paleontology, geology, petrology, and mineralogy. (Standard)

Os. A Swedish term, equivalent to *esker*, for certain elongated ridges of detrital material, generally explained as having been deposited in subglacial tunnels. (Century)

Oscillatory twinning. Repeated twinning in which the crystal is made up of thin lamellae alternately in reversed position; polysynthetic twinning: found in some feldspars. (La Forge)

Osmium. A hard, bluish or grayish-white metallic element of the platinum group, the heaviest substance known. Symbol, Os; atomic weight, 190.9; specific gravity 22.48.

Osmond (Osmund) iron. A superior kind of iron formerly imported into England from Sweden for making arrow heads, fishhooks, clocks, etc. Also iron made in the Osmund furnace. (Webster)

Osmondite. A solid solution of iron carbide in alpha iron. (Webster)

Osmose. The tendency of two liquids or gases to mix by passing through a membrane or porous wall separaing them. From Gr. *osmos*, pushing. (Rickard)

Osmosis. A kind of diffusion which takes place between two miscible fluids separated by a permeable partition, as an animal membrane and which tends to equalization on the two sides of the partition (Webster)

Osmotic. Of or pertaining to osmosis.

Osmotic equivalent. The ratio between the amount of solvent water that passes through the membrane or septum of an osmotic cell and the amount of solute which passes in the opposite direction. (Webster)

Osmotic pressure. The unbalanced pressure which gives rise to the phenomena of diffusion and of osmosis, as in a solution in which there are differences of concentration. (Webster)

Osmund furnace. A kind of high forge, intermediate in the development of the Catalan forge and the blast furnace formerly used for making wrought iron from which wire was first made in England, in the 15th century. (Webster)

Osseous breccia. The cemented mass of fragments of bones of extinct animals, found in caverns and fissures. (Comstock)

Ossipyte. A name suggested by C. H. Hitchcock for a rock from Waterville, N. H., which on examination in 1871 by E. S. Dana (before the use of thin sections in America) was thought to consist of olivine and labradorite, with a little magnetite. Ossipyte is derived from "Ossipees," the name of a tribe of Indians, who formerly lived in the region. By means of thin sections the rock was later shown to contain diallage, by G. W. Hawes, and to be a gabbro. Ossipyte was a forerunner of troctolite over which it has priority. (Kemp)

Ostatki. The residuum in the still after the distillation of the kerosene from Russian petroleum. It is a thin liquid of a specific gravity of about 0.905 to 0.912; contains but little paraffin, yields lubricating oils, the remainder being utilized for fuel. (Bacon)

Osteolite. Earthy apatite. (Dana)

Ostler. The person who feeds the mine horses or mules and keeps the stable in order (Roy). A contraction of hostler.

Ostwald's dilution law. The law, that in a solution of an electrolyte, the square of the number of moles ionized, divided by the number of moles not ionized varies directly as the dilution. (Webster)

Otavite. (S. W. Afr.). A white to reddish basic carbonate of cadmium occurring in lustrous crystalline crusts. (Webster)

Ottrelite. A gray to green, hard, brittle micaceous silicate, resembling chloritoid, of doubtful composition and uncertain crystallization. (Standard)

Ottrelite schists. Schistose rocks with the peculiar micaceous mineral ottrelite. They are best known from the Ardennes, Belgium, but are found in New England. (Kemp)

Ouachitite (pronounced waw-shee-tite). A name coined by Kemp from the Ouachita River, Arkansas, for a basic rock containing, in a glassy groundmass, prevailing and often phenomientally large phenocrysts of biotite, very subordinate augite, and magnetite. They also occur at Beemerville, N. J., associated with nephelite-syenite. (Kemp)

Ouges (Eng.). The solid rock on the side of the vein. (Bainbridge)

Oulopholite. A variety of gypsum found in the form of rosettes, flowers, vines, etc., in Mammoth cave, Kentucky. (Standard)

Ounce. One-sixteenth part of an avoirdupois pound of 7,000 grains; that is, 437.5 grains. It equals 18.23 pennyweights, 0.911 troy ounce, 28.35 grams, and has a fine-gold value of $18.84 or 77.474 shillings.

Outbond. Laid parallel to the face of the wall; said of a brick, and opposed to Inbond. (Standard)

Outbreak coal (Eng.) An old term for outcrop of a coal seam. (Gresley)

Outburst. 1. A blower. A sudden emission of large quantities of occluded gas. (Steel)
2. (Scot.) *See* Outcrop, 1 and 2.

Outby; Outbye; Outbyeside. (Newc.). Nearer to the shaft, and hence further from the working face (Raymond). Toward the mine entrance. The opposite of Inby.

Outcrop. 1. The coming out of a stratum to the surface of the ground. That part of a stratum which appears at the surface; basset. 2. To crop out; to come out to the surface of the ground, as strata (Webster) A term used in connection with a vein or lode as an essential part of the definition of apex, which *see*. It does not necessarily imply the visible presentation of the mineral on the surface of the earth, but includes those deposits that are so near to the surface as to be found easily by digging. (Stevens *v.* Williams, 1 McCrary, p. 480; 23 Federal Cas., p. 40; 1 Mo. Min., p. 566; Sloss-Sheffield Steel & Iron Co. *v.* Payne, 64 Southern, 617)

Outdoor stroke. That stroke of a Cornish pumping engine by which the water is forced upward by the weight of the descending pump rods, etc. (Gresley)

Outfall (Eng.). A seam cropping out at a lower level. (Gresley)

Outlay. 1. A laying out or expending. 2. That which is expended; expenditure (Webster). The cost of equipping a mine and placing it on a producing basis.

Outlet. The passage by which the ventilating current goes out of a mine. Same as Upcast, 1 (Raymond). An opening from a mine to the surface.

Outlier. An isolated mass or detached remnant of younger rocks, or of rocks overthrust upon others, separated by erosion from the main mass to which they belong and now surrounded, areally, by older, or at least underlying, rocks. (La Forge)

Out of the house (Newc.). The downstroke of a pumping engine. (Min. Jour.)

Out-over. Same as Outby

Output. The amount of coal or ore put out from one or more mines, or the total product of one or more furnaces or mills, during a given time. (Webster). *See also* Production.

Outset. 1. (No. of Eng.) The wall of a shaft built above the original ground level. 2. A brick or stone shaft-wall built within tubbing. (Gresley)

Outstroke (Eng.). The privilege of breaking a barrier, and working and conveying underground the coal from an adjoining royalty, or mine. (Gresley)

Outstroke rent (Eng.). Payment made for the privilege of working through a barrier and mining the coal of an adjoining property. (Gresley)

Outtake. The passage by which the ventilating current is taken out of the mine; the upcast (Chance). The return air course. An outlet.

Outwan (Scot.). Outwards. (Barrowman)

Outwash. Drift carried by running water from a glacier and deposited beyond the marginal moraine. (Webster)

Ouvarovite. *See* Uvarovite.

Oven. A chamber in which substances are artificially heated for the purposes of baking, roasting, annealing, etc. Specifically: 1. A kiln; as, a coke-*oven*. 2. In glass-making, a leer. (Standard)

Overall efficiency. Overall efficiency, of an air compressor, is the product of the compression efficiency and the mechanical efficiency. (A. I. M. E., Bull. 140, p. 57)

Overblown. Burnt by reason of an excessive blast; said of steel made by the Bessemer process. (Standard)

Overburden. 1. (Corn.) *See* Burden, 1. 2. To charge in a furnace too much ore and flux in proportion to the amount of fuel. 3. The waste which overlies the good stone in a quarry (Raymond). Worthless surface material covering a body of useful mineral. (Skinner)

Overcast. A passage through which the ventilating current is conveyed over an entry or air course. (Hargis)

Overcrossing. *See* Air crossing; Overcast.

Overdraft. An arrangement of flues to force air through a brick-kiln downward from its top; also the heated air and gas so forced through the kiln. (Standard)

Overfired. In creamics, exposed to too great heat in firing. (Century)

Overfold. An anticlinal fold pushed over until its sides are brought together and one overlies the other; an inverted or reflexed fold (Standard). *See* Overthrow fold.

Overgate. *See* Air crossing; Overcast.

Overgettings (Eng.). Minerals worked and sold from a royalty in excess of the certain quantity upon which a rent or royalty per acre is paid. (Gresley)

Overglaze. An additional glaze on porcelain, when the first has been painted upon with vitrifiable colors, or when by reason of defects a second glaze is necessary. (Standard)

Overhand stoping. The working of a block of ore from a lower level to a level above. In a restricted way overhand stoping can be applied to open or waste-filled stopes that are excavated in a series of horizontal slices either sequentially or simultaneously from the bottom of a block to its top. Stull timbering or the use of pillars characterize the method. Filling is used in many instances (Young). Modifications are known as: Back-filling method; Back stoping; Block system; Breast stoping; Combined side and long-

wall stoping; Crosscut method of working; Cross stoping; Delprat method; Drywall method; Filling system; Filling-up method; Flat-back stoping; Horizontal slicing; Longwell stoping; Open-cut system; Open stope and filling; Open-stope method; Open stope, timbering with pigsties, and filling; Overhand stoping on waste; Resuing; Rock filling; Room-and-pillar with waste filling; Sawtooth back-stoping; Side stoping; Slicing and filling system; Stoping and filling; Stoping in horizontal layers; and Transverse with filling.

Overhand stoping and milling system. *See* Combined and underhand stoping.

Overhand stoping in inclined floors. *See* Rill stoping.

Overhand stoping on waste. *See* Overhand stoping.

Overhand stoping with shrinkage and simultaneous caving. *See* Combined shrinkage stoping and block caving.

Overhead cableway. A type of equipment for the removal of soil or rock. It consists of a strong overhead cable, usually attached to towers at either end, and on which a car or traveler may run back and forth. From this car a pan or bucket may be lowered to the surface and subsequently raised and locked to the car and transported to any position on the cable where it is desired to dump its contents. (Bowles)

Overhead charges. Those general charges or expenses which can not be charged up as belonging exclusively to any particular part of the work or product. (Webster)

Overings (Newc.). The top framing of a wagon to increase its capacity. (Min. Jour.)

Overlap. The extension of younger strata beyond the limits of older ones lying beneath. (Webster)

Overlap fault. *See* Fault.

Overlay (Scot.). The material above the rock in a quarry (Barrowman). *See* Overburden, 3.

Overlooker. 1. One who overlooks. 2. An overseer, superintendent, or inspector. (Standard)

Overman. (Eng.) The mining official next in rank below the manager, who is next below the agent (Raymond). Also called Oversman. The foreman of the underground workings.

Overpoled. A term used in copper refining to designate copper which has set from the molten condition with a distinct convex crown. *See* Undeveloped; *also* Tough pitch (Eng. and Min. Jour., vol. 102, p. 875). Overpoled copper is copper from which all the suboxide has been removed by poling. (Raymond)

Overrope. A winding or hoisting rope. (Gresley)

Overshot wheel. A vertical water wheel, the circumference of which is covered with cavities or buckets, and is turned by water that shoots over the top, filling the bucket on the farther side and acting chiefly by its weight. (Webster)

Overside. Discharging over the side; said of a dredge. (Standard)

Oversize. That part of a crushed material which remains on a screen.

Overstrom table. Similar to a Wilfley table but of diamond shape (rhomboid). (Liddell)

Over-throw. 1. (Penn.) Wooden air pipes for connecting headings for ventilation. 2. (York.) *See* Air crossing. (Gresley)

Overthrow fold. *See* Overturned.

Overthrust. The lateral thrusting of a mass of rock over or upon other rocks, along a thrust fault. (La Forge)

Overthrust fault. A reverse fault with low dip, or large hade. (Lindgren, p. 128)

Overturned. Having been tilted past the vertical and hence inverted in outcrop: said of folded strata and of the folds themselves. (La Forge)

Over ventilation. Too much air in the mine workings. (Gresley)

Overwash drift. The material which is washed out from the front of a glacier. (Century)

Overweight. 1. (Aust.) The settling down of the upper rocks when working by the longwall system. It is regulated by the packwalls. If it settles too quickly, it binds the underweight, causing the latter to throw too much weight on the face. (Power)

2. (Scot.) Excess weight of disposals (sales) over output. (Barrowman)

Overwind. To hoist the cage into or over the top of the headframe. (Steel)

Ovoca classifier. A classifier of the free-settling type in which the heavy material is removed by a double-screw, continuous-flight conveyor, working up an inclined plane. (Liddell)

Owen process. A flotation process involving the violent agitation of the pulp in cold water to which a small percentage of eucalyptus oil, about 2 ozs. per ton, is added. (T. J. Hoover, p. 185)

Owner's account men (Corn.). Workmen paid by the day. (Bainbridge)

Oxbow. A crescent-shaped lake formed in an abandoned river bend which has become separated from the main stream by a change in the course of the river.

Oxford clay. An English Mesozoic formation characteristic of the middle Oölite. (Standard)

Oxidation. A chemical union with oxygen. (Raymond)

Oxide. A compound of the element oxygen with another element or elements, as Fe_2O_3. (Roy. Com.)

Oxidize. To unite with oxygen. Many minerals and most metals oxidize with greater or less rapidity when exposed to air or water. (Weed)

Oxidized zone. That portion of an ore deposit which has been subjected to the action of surface waters carrying oxygen, carbon dioxide, etc. (Farrell). That zone in which sulphides have been altered to oxides and carbonates.

Oxidizing flame. The outer cone of the blow-pipe flame, characterized by the excess of oxygen of the air over the carbon of the gas. (Dana)

Óxido (Sp.). Oxide. (Dwight)

Oxígeno (Sp.). Oxygen. (Dwight)

Oxland-Hocking furnace. A revolving, cylindrical furnace used in Sardinia for calcining sulphide ore. (Ingalls, p. 25)

Oxonite. An explosive prepared by dissolving picric acid in nitric acid. (Webster)

Oxter (Scot.). The armpit. The apex of a reëntrant, or reëntering angle in a working face of coal.

Oxycoal gas. A mixture of oxygen and coal gas. (Standard)

Oxydaceae. The oxides and their combinations with each other; one of the four classes in T. Sterry Hunt's classification of minerals. (Standard)

Oxygen. A colorless, tasteless, odorless, chemically active, gaseous element occurring in a free state in the atmosphere of which it forms about 23 per cent by weight and about 21 per cent by volume. The most abundant of all the elements. Symbol, O; atomic weight, 16.0; specific gravity, 1.105. (Webster)

Oxyhydrogen. Consisting of a mixture of oxygen and hydrogen. (Webster)

Oxyhydrogen blowpipe. A blowpipe in which hydrogen is burned in oxygen. Streams of the two gases in the proportion to form water are forced under pressure from separate reservoirs, forming a jet, and igniting just as they issue. The heat produced is sufficient to fuse very refractory substances. Called also Compound blowpipe (Standard). The temperature of the flame is estimated at 5,000° F.

Oxyphyre. Pirsson's general name for the acidic rocks. Oxyphyre is contrasted with Lamprophyre, a corresponding name for the basic rocks. The two are complementary. *See* Lamprophyre, *also* Complementary rocks. (Kemp)

Oye! (O-o-o-o-ye!) (Mex.) An exclamation used to call attention in a hoisting shaft. (Halse)

Oysanite. A name given by Lameth to the titanium mineral anatase. (Humble)

Ozarkite (Ark.). A white, massive variety of thomsonite. (Chester)

Ozocerite; Mineral wax; Fossil wax; Native paraffin. Waxlike hydrocarbon, yellow-brown to green in color; translucent when pure; feels greasy. Streak is light to brown, and specific gravity is slightly less than 1. Soluble in carbon disulphide. (U. S. Geol. Surv.)

Ozokerine. *See* Yellow Ozokerine.

Ozone. A faintly blue gaseous substance obtained by the silent discharge of electricity in air or oxygen, and by other methods. It is an allotropic form of oxygen, is a powerful oxidizer, and comparatively unstable. It is used commercially for sterilizing water, bleaching oils, etc. (Webster). Its density is one and one-half times that of oxygen.

P.

Pábilo (Mex.). A lamp or candle wick.

Pac; Pack. A moccasin, with the sole turned up and sewed to the upper; also heavy felt half-boot worn by loggers in winter (Webster). Also used by miners in the far north.

Pachapampa (Peru). Ore about the size of a walnut picked out of waste. (Halse)

Pachucha tank. *See* Brown tank.

Pacite (Bol.). Arsenical sulphide of iron, near arsenopyrite. (Chester)

Pack. 1. A wall or pillar built of gob to support the roof; also used in the anthracite regions synonomously with the English term 'chocks' or 'nogs.' (Chance)
2. To occasion the speedy subsidence of the ore in the process of washing by beating the keeve or tub with a hammer. (Steel)
3. To fill in stopes and old mine workings with waste rock to support the roof. (Webster)
4. (Eng.) A measure of coal equal to 3 bushels. 5. A bundle of iron plates ready to be heated or rolled. (Standard)

Pack builder. One who builds packs or pack walls (Gresley). *See also* Pack, 1.

Packer. 1. A device lowered in the lining tubes, which swells automatically, or can be used to expand by manipulation from the surface at the correct time, to produce a watertight joint against the sides of the bore hole or the casing, thus entirely excluding water from higher horizons. (Mitzakis)
2. (U. S. and Aust.) A person who transports goods by pack animals; a carrier; a pack animal (Webster). Common in mining districts.
3. A man who builds or constructs a pack (Gresley). *See* Pack, 1.

Packfong (Chinese). A silver-white alloy of copper, zinc, and nickel; German silver. (Ure)

Packing. 1. A general term relating to a yielding material employed to effect a tight joint. A common example is the sheet rubber used for gaskets. The term is also applied to the braided hemp or metallic rings used in some joints, that allow considerable or incessant motion. (Nat. Tube Co.)
2. (Cornish) The final dressing of tin or copper ore in a large vat or keeve filled with water. (Davies)
3. Filling, as of mortar containing small stones. 4. The filling of a coke tower or other condenser used in the manufacture of hydrochloric acid. (Webster)

Pack road. A road or trail suitable for pack animals, but not for vehicles. (Century)

Pack saddle. A saddle made for supporting the load on a pack animal. (Webster)

Packsand. A very fine-grained sandstone so loosely consolidated by a slight calcareous cement as to be readily cut by a spade. (Standard)

Pack trail (Western U. S.). A path or narrow road for the passage of pack trains only. (Standard)

Pack train. A train of pack animals. (Standard)

Pacos (Peru). An earthy mass of reddish ore containing much iron and particles of native silver, horn silver, etc. (Ure)

Pack wall. A wall of stone or rubbish to carry the roof and keep the sides up (Gresley). *See also* Pack, 1.

Pacos (Peru). Ferruginous silver ore. (Mex.) Oxidized ores (Dwight). *P. de estaño*, small veins of cassiterite. (Halse)

Pactolian. Of, or pertaining to, the Lydian river Pactolus or its gold-bearing sands. (Standard)

Paddle. 1. A straight iron tool for stirring ore in a furnace. 2. A bat or pallet, as used in tempering clay. 3. A scoop for stirring and mixing, as used in glass-making. (Standard)

Paddle-wheel agitator. A simple stirring apparatus by which the solids are kept in suspension by paddles. It is difficult to start if the sand packs around the blades, and it is expensive both in operating and in repair costs. (Liddell)

Paddock. 1. (Aust.) An inclosure for exercising horses. The Australians being keen horsemen, took to using the word in mining. Thus when ore is in "bins", or "stored", or "stacked on the surface", is is said to be "in the paddock". (Rickard)
2. A way of working a claim, the whole mass being taken out in the form of a large square pit. (Skinner)
3. A space or platform near the mouth of a shaft or excavation for temporary storage of ore or wash

dirt. 4. An excavation for wash dirt in shallow alluvium. 5. To store ore in a paddock. (Webster)

Paddy. 1. (York.) An open lamp used by miners. (Gresley)
2. A well drill having cutters that expand on pressure. (Standard)

Paddy pan (Leic.). A skip (box) formerly used in a swinging bant for carrying miners. *See* Bant; Bont, 1, and Tackler, 2. *Also* Skep.

Page. In brickmaking, a track carrying the pallets bearing newly molded bricks. (Standard)

Pagoda stone. A Chinese limestone showing in section figures fancifully likened to pagodas, due to fossil orthoceratites. (Standard)

Pagodite. A soft variety of pinite or agalmatolite out of which the Chinese carve figures of pagodas, idols, etc. (Standard)

Paha. A low ridge or hill of glacial deposits capped by loess, determined by the configuration of the subterrane, molded by and marking the direction of the ice flows of the glacial epoch; characteristic of northeastern Iowa. (Standard)

Pahoehoe. The Hawaiian word for lava, or a flow of the same, having a smooth, ropy, fluted, or lobate surface. It is contrasted with "Aa", which refers to jagged and cindery crusts. *See* Aa. (Kemp)

Painters' naphtha. *See* Turpentine substitutes. Deodorized naphtha, of gravity 58° to 60° Bé. is sometimes employed in paints. (Bacon)

Paint gold. A very thin coating of gold on minerals. (Power)

Paint mill. A machine for grinding mineral paints.

Paint rock. *See* Ocher.

Paint thinner. *See* Turpetine substitutes.

Pair (Corn.) A party of men working together; a gang (Webster). Also spelled Pare.

Pair of gears (No. of Eng.). *See* Gears.

Pair of timbers. (So. Wales). *See* Gears.

Pairs (So. Staff.). Two shafts about 100 yards apart, sunk to the Thick coal seam. (Gresley)

Paisanite. A variety of quartz-porphyry, containing phenocrysts of microperthitic orthoclase and rarer quartz, in a groundmass of quartz and feldspar. *Compare* Comendite. (Kemp)

Paja (Sp.). 1. Straw. 2. A blasting match; *P. quemada* (Bol.), a variety of jamesonite resembling a straw. (Halse)

Pájaro minero (Venez.). The miner bird. Some of the natives have a strong belief that the miner bird is a sure indicator of alluvial gold. (Halse)

Paktong. *See* Packfong.

Pala (Sp.) Shovel; *P. de cruzo*, a round-pointed shovel; *P. cuadrada*, a square-pointed shovel. (Dwight) (Halse)

Palacra (Sp.). 1. A piece of native gold. 2. An ingot of fine gold. (Halse)

Palæophyre. Gümbel's name given in 1874 to certain porphyritic dike rocks corresponding to quartz-mica-diorites in mineralogy. They cut the Silurian strata of the Fichtelgebirge. (Kemp)

Palæophyrite. A name proposed by Stache and Von John (*compare* Ortlerite) for certain porphyrites in whose strongly prevailing groundmass are phenocrysts of plagioclase, hornblende and augite. (Kemp)

Palæopicrite. A name proposed by Gümbel in 1874, for picrites which were considered by him to be similar to the rocks from the Cretaceous formation, originally named picrite by Tschermak. Gümbel called his specimens palæopicrites because they occurred in Paleozoic strata. They are chiefly olivine and augite. More or less brown hornblende and biotite also occur. (Kemp)

Palagonite-tuff. An altered basaltic tuff containing inclusions of devitrified, basaltic glass. (Kemp)

Palanca (Sp.). 1. Lever. 2. *P. de campana*, a knocker or signaling apparatus in shafts (Halse).
3. The toggle of a rock crusher. (Dwight)

Palanque (Mex.). Barring after shots have been fired. (Dwight)

Palanthropic. In geology, according to Dawson, the earlier part of the anthropic, the post-glacial Pleistocene, during which man appeared and there was an extensive emergence of land. (Standard)

Palatinite. A name proposed by Laspeyres for certain rocks in the German Province of Pfalz, supposed by him to be gabbros with diallage and to be of Carboniferous age; but they have since been shown to be essentially diabases. The word is derived from the classic name of the district. (Kemp)

Pale brick. Brick which are underburned. (Ries)

Paleocene. The earliest of the epochs comprised in the Paleogene period, in the classification adopted by some geologists. Also the series of strata deposited during that epoch: they are regarded by some geologists as Upper Cretaceous and by others as Eocene. (La Forge)

Paleogene. The earlier of the two periods comprised in the Cenozoic era, in the classification adopted by the International Geologic Congress and used by many European geologists: it includes the Paleocene (if that be accepted), Eocene, and Oligocene epochs. Also the system of strata deposited during that epoch. Compare Neogene. (La Forge)

Paleolithic. Of, or pertaining to, the earliest known human culture, which is represented chiefly by unpolished stone implements. The paleolithic period was applied in Europe to the earliest known culture period, which was apparently sharply separated from the succeeding and much shorter period, called the Neolithic period, the two forming the Age of stone. (Webster)

Paleontology. The science that deals with the life of past geological ages. It is based on the study of the fossil remains of organisms. (Webster)

Paleoplain. In geology, an ancient plain of degradation, buried under later deposits. (La Forge)

Palevolcanic. Of effusive character and having been erupted before the Tertiary period: said of some volcanic igneous rocks and opposed to Neovolcanic. Now obsolescent. (La Forge)

Paleozoic. One of the grand divisions or eras of geologic time, preceding the Mesozoic era. Also the group of rocks formed during the Paleozoic era, which comprises, in the generally adopted classification, the Cambrian Ordovician, Silurian, Devonian, and Carboniferous systems. The beginning of the Paleozoic was formerly supposed to be marked by the appearance of life on the earth and the lowest Paleozoic strata were supposed to be the oldest fossiliferous rocks of the earth's crust, but both suppositions are now known to be incorrect. (La Forge)

Palero (Mex.). Shoveler; mine carpenter, or timberman. (Dwight)

Palisade. A line of bold cliffs, especially one showing basaltic columns. (Webster)

Pallaco (Peru). A piece of ore of good quality found on waste heaps. (Halse)

Palladium. A rare metallic element of the platinum group, found native and also alloyed with platinum and gold. Silver-white, ductile, malleable. Symbol, Pd; atomic weight, 106.7; specific gravity, 11.8. (Webster)

Palladium gold. Same as Porpezite, or gold containing palladium up to 10 per cent. (Dana)

Pallador (Peru). An ore sorter. (Halse)

Pallalla (Bol.). A sort of trowel for agitating gravel in alluvial mining. (Halse)

Pallaquear (Sp. Am.). To pick over the dumps. (Lucas)

Pallas iron. *See* Pallasite.

Pallasite. Originally proposed by Gustav Rose for a meteorite that fell near Pallas, in Russia; has been used by Wadsworth in a wider sense for both meteoric and terrestrial, ultra-basic rocks, which in the former average about 60 per cent iron and in the latter have at least more iron oxides than silica. Cumberlandite (which see) is the chief example (Kemp). Also called Pallas iron.

Pallet. 1. A board for carrying newly molded bricks. 2. A potters' wheel. 3. A paddle for mixing and shaping clay for crucibles, etc. (Standard)

Pallet boy. In brickmaking, a boy who places pallets on the dump-table. (Standard)

Palleting. A light platform in the bottom of powder magazines to preserve the powder from dampness. (Century)

Pallet molding. A method of forming bricks in sanded molds, from which they are dumped on a board called a pallet: distinguished from *slop-molding*. (Standard)

Palm. A piece of stout leather fitting the palm of the hand, and secured by a loop to the thumb; this has a flat indented plate for forcing the needle. (C. and M. M. P.). Used in sewing heavy canvas.

Palm needle. A straight triangular-sectioned needle used for sewing canvas. (C. and M. M. P.)

Palo (Mex.). Stick; piece of timber; *P. labrados*, hewn timber; *P. redondos*, round timber. (Dwight)

Pampa (Peru). An elevated plane at the base of mountains. (Halse)

Pan. **1.** *See* Panning. **2.** A cylindrical vat of iron, stone, or wood, or these combined, in which ore is ground with mullers and amalgamated. *See* Amalgamating pan. (Raymond)
3. A copper or galvanized iron utensil used for washing gold ore and gravel so as to separate the heavy gold by a shaking motion. It corresponds to the Cornishman's vanning shovel (Rickard). Also called Dish.
4. To wash earth, gravel, etc., in a pan in searching for gold. To yield gold in, or as in the process of panning. (Webster)
5. The solid stratum of clay, pebbles, etc., underlying soil; hardpan; used chiefly in Great Britain. (Standard). Fireclay or underclay of coal seams.
6. (Mid.). Sheet-iron vessels holding, say ¼ cwt., into which fillers rake the small coal. (Gresley)

Panabase. Same as Tetrahedrite, $Cu_8Sb_2S_7$. (Dana)

Panal de Rosa (Peru). Fissured quartz containing gold. (Halse)

Pan amalgamation. Amalgamation of silver or gold with mercury by grinding in a pan. (Duryee)

Pañar (Colom.). To collect gold-bearing sand in spoons and scoops, and deposit it in the *bateas*. (Halse)

Pancake. Same as Ribbon, 1.

Panclastite. An explosive composed of liquid nitrogen tetroxide mixed with carbon disulphide or other liquid combustible, in the proportion of three volumes of the former to two of the combustible. (Century)

Pan coal (Scot.). Small coal suitable for use at salt works, as under salt pans. (Barrowman)

Pandermite. Firm, compact, porcelain-like masses of colemanite. (Moses)

Pane. **1.** (So. Staff.) A quantity of coal measuring 2 feet 6 inches high, 6 feet in width, and 6 feet under or forward. (Gresley)
2. *See* Peen.

Panel. **1.** A heap of dressed ore. **2.** A system of coal-extraction in which the ground is laid off in separate districts or panels, pillars of extra size being left between. (Raymond)
3. A large rectangular block or pillar of coal measuring, say, 130 by 100 yds. **4.** A group of breasts or rooms separated from the other workings by large pillars. (Steel)
5. A small portion of coal left uncut. (Webster)

Panella (Braz.). A miner's term for druse. (Halse)

Panel slicing. *See* Top slicing and cover caving.

Panel working. A system of working coal seams in which the colliery is divided up into large squares or panels, isolated or surrounded by solid ribs of coal of which a separate set of breasts and pillars is worked, and the ventilation is kept distinct, that is, every panel has its own circulation, the air of one not passing into the adjoining one, but being carried direct to the main return airway. (C. and M. M. P.)

Panes (Mex.). Amalgamating pans. (Dwight)

Pan ice (Labrador). Ice formed along the shore and subsequently loosened and driven by winds and currents. (Century)

Panidiomorphic. Rosenbusch's term for those rocks, all of whose components possess their own crystal boundaries. (Kemp)

Panino (Mex.). Vein-formation; vein material; the ground or country through which the lode runs; also, the matrix. (Min. Jour.). *P. muy macizo*, the very hardest kind of vein matter or rock; *P. macizo*, rock not quite so hard, but still not requiring to be timbered; *P. favorable*, rock easily broken down by drilling, but not needing timbering; *P. blando*, generally slate or schist which can be broken easily by pick, bar, or wedge, and which must sooner or later be timbered; *P. muy blando*, usually clay shale or argillaceous schist, and requiring constantly to be held up by timbering. (Dwight)

Panizo (Peru). 1. A whitish feldspar, or kaolin; feldspathic gangue. 2. Trachyte. 3. (Chile) Country rock. (Halse)

Paneling. Division into panels or compartments; panel working, *See* Panel, 2. (Webster)

Panning (Aust. and Pac.). Washing earth or crushed rock in a pan, by agitation with water, to obtain the particles of greatest specific gravity which it contains (chiefly practiced for gold, also for quicksilver, diamonds, and other gems). (Raymond)

Pan out. To give a result, especially as compared with expectations, as in mining, the gravel *pans* out well. *See* Pan, 4.

Papa. 1. (Maori) A kind of bluish indurated pipe clay, sometimes used for whitening fireplaces. It is often as hard as stone and is then called *papa* rock. (Webster)
2. (Sp.). A nugget of gold or silver. 3. A nodule of mineral (Halse)
4. (Sp.) A potato. (Vel.)

Pantellerite. A felsophyric or vitrophyric igneous rock, virtually a sodic-quartz trachyte, containing essential anorthoclase, aegirite, and quartz, and perhaps diopside and and cossyrite. (La Forge). Applied to a group of rocks intermediate between the rhyolites and trachytes on the one hand, and the dacites on the other. They differ from all these in having anorthoclase as the principal feldspar. Cossyrite, a rare and probably titaniferous amphibole, occurs at the original locality on the island of Pantelleria, in the Mediterranean. The name was given by Förstner. (Kemp)

Pantile. A roofing tile; a gutter tile; a flat paving tile (Webster). Also spelled Pentile.

Pantograph. An instrument for copying maps, plans, etc., on any predetermined scale. (Webster)

Paper coal. A variety of brown coal deposited in thin layers like sheets of paper. (Power)

Paper spar. A variety of calcite found in thin paper-like plates. (Standard)

Par; Par value. Equality of the nominal and market values of securities or certificates of value (often called *nominal, or face par*), or the value or price at which they are issued and their market value (called *issue par*). Nominal value; face value. (Webster)

Para (Mex.). A leather apron worn by miners. (Halse)

Paracaída (Sp.). 1. A parachute. 2. A safety appliance for bringing the cage quickly to rest in case the hoisting cable breaks. (Halse)

Parachrosis. Discoloration in minerals from exposure to the weather. (Standard)

Parachute. 1. A kind of safety-catch for shaft cages. 2. In rod boring, a cage with a leather cover to prevent a too rapid fall of the rods in case of accident. (Raymond)

Paraclase. A term used by Daubrée for faults. (Power)

Parada (Sp.). A relief, or change of men, horses, or mules; a shift. (Halse). *Paradas de busca* (Mex.), miners working on a tribute; *P. a la carga*, miners working for so much per ton or *carga* of ore broken down or extracted; *P. a destajo*, miners on contract, at so much per meter, etc.; *P. a partido*, miners receiving as pay a share of the ore they mine; *P. de hacienda*, or *P. de obra*, miners working by the day. (Dwight)

Paraffin. A white, waxy, inodorous, tasteless substance, harder than tallow, softer than wax, with a specific gravity of 0.890. Its melting point is variable, depending somewhat upon its origin; it ranges between 43° and 65° C. (109° and 151° F.) An ultimate analysis yields, on the average, carbon 85 per cent. and hydrogen 15 per cent. It is insoluble in water, is indifferent to the most powerful acids, alkalies, and chlorine, and can be distilled unchanged with strong sulphuric acid. Warm alcohol, ether, oil of turpentine, olive oil, benzol, chloroform, and carbon disulphide dissolve it readily. It can be mixed in all proportions with wax, stearin, palmitin, and resin (Bacon). Paraffin is found native, as in ozocerite and hatchettite, also in peat and bituminous coal, and is contained in numerous oils, as petroleum, from which it is separated by distillation. (Standard)

Paraffin-asphalt petroleum. A combination of paraffin-base and asphalt-base petroleums. (Bacon)

Paraffin-base petroleum. Crude oil which carries solid paraffin hydrocarbons and practically no asphalt. (Bacon)

Paraffin butter. A variety of native paraffin used in making candles. (Standard)

Paraffin coal. A light-colored bituminous coal used for the production of oil and paraffin. (Mitzakis)

Paraffin fluxes. The residuals obtained from paraffin-base petroleums are characterized by containing 14½ to 4 per cent. of hard paraffin scale, consisting to a predominating degree of saturated hydrocarbons (85.6 to 74.1 per cent.) and having a specific gravity of 0.92 to 0.94. In general, it may be said that paraffin fluxes yield only a small percentage of residual coke and contain but little sulphur. (Bacon)

Paraffin oil. **1.** Lubricating oil made by the dry distillation method. **2.** A proprietary name for liquid petrolatum. (Bacon)

Paraffin scale. Crude paraffin wax. (Bacon)

Paraffinum. A mixture of solid hydrocarbons chiefly of the methane series; usually obtained by chilling and pressing the distillates from petroleum having high boiling point, and purifying the solid press-cake so obtained. *See* Paraffin. (Bacon)

Paraffinum liquidum. The medicinal petroleum of the British Pharmacopoeia. Sp. gr., 0.885–0.890. In the refining of Russian petroleum, the finest quality of perfumery oil is termed *paraffinum liquidum*, and for phamaceutical purpose is often subjected to a final distillation. *See* Petrolatum, liquid. (Bacon)

Paraffinum molle. According to the British Pharmacopoeia, a petroleum product corresponding to the vaseline of the United States Pharmacpoeia. (Bacon)

Paragenesis. A general term for the order of formation of associated minerals in time succession, one after another. To study the paragenesis is to trace out in a rock or vein the succession in which the minerals have developed. (Kemp)

Paragneiss. **1.** In petrology, a gneiss formed by the metamorphism of a sedimentary rock. **2.** A gneiss formed from a sedimentary rock by an intermediary action of an igneous magma to such an extent that a virtually new rock is formed. (La Forge)

Paragonite. A kind of mica corresponding to muscovite, but with sodium instead of potassium. (Webster)

Paragonite schist. A variety of schist in which paragonite replaces biotite. (Standard)

Parallel growth. Two or more crystals with corresponding faces parallel. (A. F. Rogers)

Parallel roads. A geological term for a series of terraces at different levels, as those of Glen Roy, Scotland. (Webster)

Paramagnetic. Opposed to diamagnetic. Applied to substances such as iron, which, when freely suspended between two magnetic poles, arranges itself in the line between them (Power). Having a magnetic permeability greater than unity. (Webster)

Paramento (Sp.). Lining of a blast furnace. (Halse)

Parameter. In minerology that rational multiple of the unit-length of any semiaxis intercepted by a crystal plane which determines its position with reference to the fundamental form. (Standard)

Paramilla (Chile). A low range of mountains. (Halse).

Paramorph. A crystal that has undergone a change in its physical properties without a corresponding change in composition (Butler). A result of paramorphism.

Paramorphism. The alteration of one mineral into another without change of composition, as augite into hornblende in uralitization. It is also used in connection with metamorphism to describe such thorough changes in a rock that its old components are destroyed and new ones are built up. (Kemp)

Paranthine. Haüy's name for scapolite. (Humble)

Parar (Sp.). To stop; *P. la bateria*, to stop the battery or mill. (Halse)

Parasitic crater. *See* Adventive crater.

Paratomous. Having planes of cleavage inclined to the axis; also, abounding with facets of cleavage. (Standard)

Parcel. 1. (So. Staff.) An old term for a ton; really 27 cwts. (Gresley)
2. (Corn.) A heap of dressed ore ready for sale. (Raymond)

Parcionero (Mex.). Partner in a mining contract. (Dwight)

Pardo (Mex.). Oxidized or surface ore. *See* Colorados. (Dwight)

Pare (Corn.). Gang or party of men. (Min. Jour.). *See* Pair.

Pared (Mex.). Vein wall. (Dwight)

Paret (Borneo). A mine. (Lock)

Pargasite. An amphibole including green and bluish-green kinds of hornblende, occurring in stout lustrous crystals, or granular. (Dana)

Parget. Gypsum, especially that from Derbyshire or from Montmartre. (Standard)

Parian. In ceramics, resembling the marble of Paros, as *Parian* biscuit. (Standard)

Parian biscuit. A hard, fine, half-vitreous, porcelain resembling Carrara marble; used for objects of art and ornament. (Standard)

Parianite. Asphalt from the Pitch lake, Trinidad. (Bacon)

Parian marble. One of the most famous of ancient statuary marbles; from the island of Paros in the Grecian archipelago. (Merrill)

Parian porcelain. A fine variety of hard porcelain used for statuettes and bas-reliefs; so called from its resemblance to Parian marble. (Standard)

Parihuela (Mex.). Handbarrow. (Dwight)

Parisite. A fluocarbonate of the cerium metals. In acute double hexagonal pyramids. Color brownish-yellow. (Dana)

Parka (Arctic). An outer garment made of the skins of birds or mammals, or of cloth, worn by the Eskimos. Also worn by prospectors and travelers in Alaska in extreme cold weather.

Parkes process. The refining of lead by the addition of zinc to molten argentiferous lead. The zinc and silver rise to the surface of the bath as a scum, which is then taken off and afterwards distilled to drive off the zinc. (Liddell)

Parliamentary pit (Scot.). A mine outlet or shaft, required by an act of Parliament. (Barrowman)

Parmazo marble. A white marble traversed by a coarse network of dark lines; from northern Italy. (Merrill)

Parol. A trade name for a fuel used in internal combustion engines. Made from paraffin by a chemical process without the use of heat. (Bacon)

Parophite. A name given by T. Sterry Hunt to a rock or mineral similar to dysyntribite. The name means 'like serpentine.' (Kemp)

Paroxysm. In geology, any violent or sudden natural occurrence, as a volcanic eruption, a sudden flood, etc. (Roy. Com.)

Parral agitator. An agitator using a number of small air lifts disposed about a circular, flat-bottomed tank in such a way as to impart a circular swirling motion to the pulp. (Liddell)

Parrilla (Sp.). Grate bar. (Dwight)

Parrot coal. 1. (Scot., No. of Eng.) A variety of cannel coal, so-called, because when on the fire it splits and cracks with a chattering noise, like a parrot talking. (Gresley)
2. Sometimes applied to gas coal when of inferior quality. (Barrowman)

Part. 1. Same as Parting, 2. 2. In founding, a section of a mold or flask, specifically distinguished (in a three-part flask) as top *part*, middle *part*, and bottom *part*. (Standard)

Part candles (Eng.). The use of candles as well as safety lamps in a mine. (Gresley)

Partido (Mex.). Division of ores between partners. Working a mine by *partido* is when the miners agree with the owners to take a certain part of the ores in place of wages. Usually the mine owner provides candles, powder, and steel, and keeps the drills sharpened, and receives, in payment of royalty and supplies, two-thirds or more of the ore taken out. This contract is renewed weekly or monthly, and the proportion of ore retained by the miners is greater or smaller according to the richness of the stopes where they work. It is generally bought from them by the mine owner himself, for various reasons. (Dwight)

Partidor (Sp.). An ore sorter. (Halse)

Patilla (Mex.). Platform left in shaft. (Dwight)

Parting. 1. A small joint in coal or rock, or a layer of rock in a coal seam. 2. The separation of two metals in an alloy, especially the separation of gold and silver by means of nitric or sulphuric acid. (Raymond)
3. A side track or turnout in a haulage road. *Entry parting*, the parting at the beginning of an entry in a slope mine. *Inside* or *swing parting*, a parting some distance from the mouth of an entry, from which the cars are hauled out by a special mule or team. *Rope parting* or *motor parting*, a parting on which trips of cars are collected for hauling out by a rope-hauling system, or electric motor. (Steel)
4. (Scot.) The manner in which a seam parts from its roof or pavement; it is a bad parting when they do not separate readily, a good parting when they do. (Barrowman)
5. The tendency of crystals to separate along certain planes that are not true cleavage planes, but which have become directions of minimum cohesion through gliding, secondary twinning, or some other external cause. 6. The line or plane of separation between the parts of a molder's flask. (Standard)

Parting flask. In assaying, a flask used in parting (Webster). *See also* Parting, 2.

Parting glass. Same as Parting flask.

Parting sand. Fine, dry sand, which is sifted over the partings in a mold to facilitate their separation when the flask is opened. (Raymond)

Parting slate. A term applied to a thin layer of slate between two seams of coal. (Thacker *v.* Shelby Coal Min. Co. 197 S. W. Rept., p. 633)

Partiversal dip. A series of local dips varying approximately 180° in compass-direction, occurring at or near the end of a plunging anticlinal axis.

Pascal's law. The principle that the pressure in a fluid not acted upon by external forces is the same at all points, or that a fluid transmits pressures equally in all directions. (Webster)

Pasilla (Mex.). Dry silver amalgam. (Dwight)

Pasillo (Sp.). In coal mining, a cross cut; break through; thurl or thurling. (Halse)

Paso (Sp.). 1. Any underground drift or gallery. 2. An ore pass or chute. 3. A mountain pass. (Halse)

Pass. 1. (Corn.) An opening in a mine through which ore is delivered from a higher to a lower level. *See* Chute. 2. In rolling mills the passage of the bar between the rolls. When the bar passes 'on the flat' it is called a flatting-pass; if 'on the edge,' an edging-pass. (Raymond)
3. A passage left in old workings for men to travel in from one level to another. (C. and M. M. P.)

Passador (Braz.). A classifier or pulp thickener. Similar to an inverted pyramid or cone. (Bensusan)

Passauite. A variety of wernerite, also called porcelain-spar. (Chester)

Pass-by; Pass-bye. 1. (Eng.) A passage round the working part of a shaft. A by-pass. (Power)
2. A siding in which cars pass one another underground; a turnout. (C. and M. M. P.)

Passing water (Scot.). When a pump bucket is worn, or otherwise not tight, it is said to be passing water. (Barrowman)

Pass-into. A transition of one mineral into another without any sudden change. (C. and M. M. P.)

Passive iron. Iron rendered non-corrodible by treatment with heat or acids. (Standard)

Pass-pipe. An iron pipe connecting the water at the back of one set of tubbing with that of another, or a pipe only in communication with one tub (Tub, 5), and open to the interior of the shaft. (Gresley)

Pasta (Mex.). 1. Amalgam of gold and silver. 2. Gold and silver bullion (Dwight).
3. (Mex.). Argentiferous ores, as blende, galena, etc. 4. (Chile) Gray copper ore; tetrahedrite. (Halse)

Paste. 1. The mineral substance in which other minerals are embedded; groundmass, as of a porphyry. (Webster)
2. A mixture of clay, variously prepared for making stoneware or porcelain. (Standard)

Pasting. The operation of mudcapping. (Du Pont)

Pat. In brickmaking, to remove the rough edge of green bricks with a stamper. (Standard)

Pataka (N. Z.). A storehouse raised above the ground. (Webster) A cache.

Patch. A small placer property. (Milford)

Patcher. 1. A driver's assitant or helper; a brakeman or trip-rider. (C. and M. M. P.)
2. One who repairs broken brattices, doors, stoppings, etc., in a mine.

Patching (So. Wales). Workings carried on at the outcrop (Gresley). Called Patchwork in Derbyshire.

Patchy. Distributed in patches or in an irregular manner as when ore occurs in bunches or sporadically. (Roy. Com.)

Pat coal (Scot.). The bottom, or lowest, coal sunk through in a shaft. (Barrowman)

Pâte (Fr.). Paste; particularly, porcelain-paste. (Standard)

Patent. 1. An instrument making a conveyance or grant of public lands. (Webster)
2. Title in fee, obtained by patent from the United States Government. when there has been done an equivalent of $500 worth of work on or for each mining claim. (U. S. Min. Stat., pp. 400–426; 493–494; 563; 570–574)

Patent axe. A type of surfacing machine employed to remove irregularities from the surface of blocks of stone. (Bowles)

Patente (Chile). An annual tax on mines, amounting to $10 per hectare. (Halse)

Patented claim. A claim to which a patent has been secured from the Government, by compliance with the laws relating to such claims (C. and M. M. P.). *See also* Patent, 2.

Patent fuel (Eng.). The fuel produced by the agglomeration of coal-slack into lumps (Raymond). *See also* Briquet.

Patent survey. An accurate survey of a mining claim by a U. S. deputy surveyor as required by law in order to secure a patent (title) to the claim.

Patera process. A metallurgical process consisting of a chloridizing-roasting; leaching with water to remove base metals (some silver is dissolved and must be recovered); leaching with sodium hyposulphite for silver; precipitation of silver by sodium sulphide. The process was first carried out by von Patera at Joachimsthal (Liddell). *See also* Joachimsthal process.

Paternoster pump. A chain-pump; named from a fancied resemblance of the disks and the endless chain to a rosary. (Standard)

Pâte sur pâte (Fr.). A decoration for pottery, made of white porcelain paste, on a dark ground, so applied as to produce effects of light and shade by varying thicknesses. (Standard)

Pâte tendre (Fr.). Soft paste for porcelain. (Standard)

Patio (Sp.). 1. The yard where ores are cleaned and assorted; also, the amalgamation floor, or the Spanish process itself of amalgamating silver ores on an open floor (Raymond). *P. de amalgamación*, amalgamation court or floor; *Beneficio de p.*, the cold amalgamation process, or American heap amalgamation. It was invented by Bartolemé de Medina, Pachuca, Mex., in 1557; introduced into Peru in 1574. In 1793 mules and horses were first used in the process. 2. *Trabajor por p.* (Colom.) To quarry or make an open cut. (Halse)

Patio (Mex.). Cloth used by miners. (Dwight)

Patio process. A process for the recovery of silver by amalgamation in low heaps with the aid of salt and copper sulphate (magistral). Thorough mixing is obtained in the usual form by having horses or oxen tread the mass. (Liddell)

Patrón (Sp.). An overman. (Halse)

Patrón de oro (Sp.). Gold standard. (Lucas)

Pattern. In founding, a model, usually of wood or iron, and often in several parts to facilitate removal, about which to form a sand mold, in which a casting may be made. (Standard)

Pattern molder. One who makes sand molds for castings; a molder. (Standard)

Patterson agitator. An agitator of the Pachuca-tank type in which the air is replaced by solution or water, under pressure from a centrifugal pump. (Liddell)

Pattinson process. A process in which lead, containing silver, is passed through a series of melting kettles, in each of which crystals of a poorer alloy are deposited, while the fluid bath, ladled from one kettle to the next, is proportionately richer in silver. In mechanical pattinsonation the operation is performed in a cylindrical vessel, in which the bath is stirred mechanically, and from which, as the richer alloy crystallizes, the poorer liquid is repeatedly drained out. Steam pattinsonation is a variety of the Pattinson process, in which steam is conducted through the lead bath to assist the refining. (Raymond)

Pattinson's pots. A series of pots for separating silver and lead by making use of the fact that the melting-point of the lead-silver alloys is higher in proportion as the percentage of silver is greater. (Standard)

Paulistas (Braz.). Natives of São Paulo who first discovered gold near that city. (Halse)

Pavement. The floor of a mine. (Raymond)

Paving brick. Vitrified brick used for paving purposes. (Ries)

Paving stone. Stone prepared, or suitable, for paving; stone used in pavements (Standard). Usually in large flat slabs, or square blocks, as Belgian block.

Paving tile. Tile used for floors. (Standard)

Pavonado. 1. (Peru) Tetrahedrite, frequently argentiferous. 2. *Pavonados* (Peru), a rich zone composed principally of sulphides and sulphantimonates of silver. (Halse)

Pavonazetta marble. *See* Pavonazza.

Pavonazza; Pavonazetta marble. A siliceous limestone of various shades of green, blue or gray, alternating with bands of white. Formerly much used in southern Italy. So called from its resemblance to the plumage of a peacock; also called Phrygian marble. (Merrill)

Pawn (Derb.). A security put up by a miner when he makes claim to a vein discovered by or in the possession of another. The claim is settled by trial at a Barmote court. (Mander)

Paxillose. In geology, resembling a little stake.

Pay. 1. Profitable ore. *See* Pay dirt. 2. (Eng.) The day upon which, or the place where, wages are made up or paid. (Gresley)

Pay bill; Pay sheet (Scot.). A statement showing details of workmen's wages for a stated period, usually a fortnight. (Barrowman)

Pay dirt; Pay rock. 1. (West. U .S.) Earth, rock, etc., which yields a profit to the miner. (Webster) 2. (So. Afr.) Auriferous gravel rich enough to pay for washing or working. (Skinner)

Pay gravel. In placer mining, a rich strip or lead of auriferous gravel. (Hanks)

Payne's process. A process for preserving timber and rendering it incombustible by impregnating it successively with solutions of sulphate of iron and calcium chloride in vacuo. Paynize. (Webster)

Pay ore. Those parts of an ore body which are both rich enough and large enough to work with profit (Power). *See* Pay dirt; Pay gravel; Pay rock.

Pay out. To slacken or to let out rope. (C. and M. M. P.)

Pay shoot. A portion of a deposit composed of pay ore. (Farrell)

Pay streak. That portion of a vein which carries the profitable or pay ore.

Peach (Corn.). Chlorite. (Raymond)

Peachblow. 1. A light-purple glaze inclining to pink, seen on some Oriental porcelain. 2. A kind of ware thus glazed or tinted. (Standard)

Peach stone (Corn.). A greenish-colored soft stone; chloritic schist. (Davies)

Peachy lode (Corn.). A lode filled with a greenish chlorite, of peachy luster and loose cellular texture. (Power)

Peacock coal (Eng.). Iridescent coal. (Webster)

Peacock copper. A synonym for Bornite. (A. F. Rogers)

Peacock ore. An iridescent variety of copper ore; bornite; also chalcopyrite when slightly oxidized on the surface.

Pea coal. In anthracite only,—coal small enough to pass through a mesh three quarters to half an inch square, but too large to pass through

a three-eighth inch mesh. When Buckwheat coal is made, the size marketed as Pea is sometimes larger than the above; known also as No. 6 coal. (Chance)

Pea grit (Eng.). A grit composed of rounded or oval concretionary masses like peas; often like crushed peas. (Oldham)

Peak. A headland or promontory; the top or one of the tops of a hill, mountain or range, ending in a point. (Webster)

Pea ore (Eng.). Rounded grains of hydrated peroxide of iron, or silicate of iron, commonly found in cavities of Jurassic limestone (Power). The mineral limonite, occurring in round grains about the size of a pea (Webster). Also called Bean ore.

Pearce turret furnace. A furnace consisting of a narrower hearth, bent around a circle, the circumference of which is a little greater than the length of the hearth, so that the two ends do not quite meet. Used for calcining sulphide ores. (Peters, p. 205; Hofman, p. 175; Ingalls, p. 101)

Pearlash. Commercial potassium carbonate. (Century)

Pearl diabase. *See* Variolite.

Pearlite. 1. *See* Perlite, 1. Also called Pearlstone. 2. A eutectoid of cementite and crystallized iron formed by slow cooling of molten steel. Synonyms, Pearlyte, Perlite, Cryocarbide, and Pearly constituent. (Tieman)

Pearl mica. Same as Margarite, 2.

Pearl opal. Same as cacholong; an opaque, bluish white, porcelain white, pale yellowish or reddish variety of opal. (Dana)

Pearl sinter. A variety of opal. (Dana)

Pearl spar. Dolomite occurring in rhombohedrons having a pearly luster. (Power)

Pearlstone. Same as Perlite, 1.

Pearly. Applied to minerals having a luster like a pearl, as talc, brucite, stilbite, etc. (Dana)

Pearlyte. A mixture of ferrite and cementite having a pearly appearance when lamellar (Standard). *See also* Pearlite, 2.

Peas (Eng.). *See* Pea coal.

Pease's electric tester. An instrument in which the vapor of petroleum is ignited by an electric spark passing above the oil cup, which rests in a water bath. (Mitzakis)

Peastone. Same as Pisolite.

Peasy. 1. Applied to small pieces of ore, the weight of which may be estimated by the hand. (Morine) 2. (No. of Eng.) Lead ore in grains about the size of peas. (Standard)

Peat. A dark-brown or black residuum produced by the partial decomposition and disintegration of mosses, sedges, trees, and other plants that grow in marshes and like wet places. It may be identified as the dark-colored soil found in bogs and swamps, commonly called muck, although technically the term "muck" should be restricted to such decayed vegetal matter as is impure and contains too much ash to burn readily. True peat consists principally of carbon, hydrogen, and oxygen, in varying proportions, and because of its high carbon content, it will ignite and burn freely when dry. (Mineral Resources of the United States, 1917, Pt. 2, p. 261.)

Peat bed. An accumulation of peat.

Peat bog. A bog containing peat; an accumulation of peat. (Webster)

Peat charcoal. Charcoal made from peat. (Standard)

Peat coal. 1. A natural product intermediate between peat and lignite. 2. An artificial fuel made by carbonizing peat. (Webster)

Peat coke. Same as Peat charcoal. (Standard)

Peat cutter. A paring-plow for cutting peat. (Standard)

Peatery. A peat bog or bank (Webster). Also Petary.

Peat gas. Gas made by distilling peat. (Webster)

Peat hag. A pit or quag formed by digging out peat. (Standard)

Peat machine. A machine for grinding and briqueting peat. (Webster)

Peat man. A digger or seller of peat. (Webster)

Peat moor. Same as peat moss. In the United States such deposits are called swamps or bogs. (Century)

Peat moss. 1. Any moss from which peat has been formed. 2. (Eng.) A peat bog; also, peat itself. (Webster)

Peat press. A press machine for making peat into blocks of artificial fuel. (Standard)

Peat reek. The smoke of peat. (Webster)

Peat soil. A rich dark soil containing peat, especially the soil of a reclaimed peat bog. (Standard)

Peat spade. A spade with an L-shaped blade for cutting out peat in blocks. (Webster)

Peat tar. A tar obtained from the distillation of peat. The distillates obtained contain from 2 to 6 per cent of tar. (Bacon)

Peaty. Resembling or containing peat; having the nature of peat. (Standard)

Peau d'orange. In ceramies, a decoration or finish of a surface such that it resembles in roughness the skin of an orange. (Standard)

Peavy. A stout lever like a cant hook, but having the end armed with a strong and sharp spike. (Webster)

Pebble. 1. A small roundish stone, especially one worn round by the action of water; a pebblestone; also a gem occurring in the form of pebbles. 2. Transparent, colorless quartz; rock crystal; as Brazilian pebble. (Webster)

Pebble crystal. A crystal, as of quartz in the rough state, worn into the form of a pebble. (Standard)

Pebble jack. Zinc blende in small crystals or pebble-like forms not attached to rock, but found in clay openings in the rock. (C. and M. M. P.)

Pebble powder. Gunpowder pressed into large cubical grains, to render it slow burning. It is inferior to the perforated prismatic powder in that the burning surface constantly decreases, and therefore the rate of emission of gas is greater at the beginning than at the end. (Webster)

Pebblestone. A pebble; also pebbles collectively. (Webster)

Pebbleware. A variety of Wedgwood ware with a variegated body of different colored clays intermingled, called according to pattern, agate, Egyptian pebble, granite, lapis-lazuli, porphyry, serpentine, verd-antique, etc. (Standard)

Pechera (Mex.). Leather or cloth, worn by a laborer carrying ore, to protect neck and back. (Dwight)

Pecho (Sp.). 1. The front wall of a shaft furnace. 2. *Barreno de p.*, a horizontal drill hole. (Halse)

Pecking up (So. Staff.). Elevating or propping up with rough stones, bricks, rubbish, etc. (Gresley)

Pecos ore. 1. A gossan containing lead and silver. 2. (Tasmania) A yellowish, earthy mixture of oxides of iron, lead, and antimony containing silver; mostly massicot. (Power)

Pectinate, or Pectinated mineral. A mineral that presents the appearance of close and nearly parallel filaments. (Standard)

Pectolite. An acid silicate of sodium and calcium, $H_2O.Na_2O.4CaO.6SiO_2$. (Dana)

Pedernal. 1. (Mex.) A massive compact variety of quartz; flint; hornstones. 2. *Pedernales* (Peru), silver ores formed of siliceous sand impregnated with oxide of iron. (Halse)

Pedial class. In crystallography, the class without any symmetry. (A. F. Rogers)

Pedimento (Chile). A written petition for a piece of mining ground (Halse). A synonym of Petición, Solicitud.

Pedis possessio. The actual possession of a piece of mineral land to the extent needed to give the locator room to work and to prevent probable breaches of the peace, but not necessarily to the extent of a mining claim. (Hanson *v.* Craig, 170 Fed. Rept., p. 65; Zollers *v.* Evans, 5 Fed. Rept., p. 172; Costigan on Mining Law, p. 156)

Pednan. 1. (Corn.) The upper part of a buddle. 2. A deposit of ore detached from a lode. (Davies)

Ped'n cairn (Corn.). A bunch of ore at a distance from the lode. (Min. Jour.)

Pedra (Port.). 1. A stone; *P. de ferro*, ironstone; *P. de lages*, flagstone. (Halse)

Pedregal (Southwestern U. S.). A stony tract; lava field. (Standard)

Pedreiro (Braz.). A stone mason. (Bensusan)

Pee. 1. Two veins crossing each other obliquely. (Skinner)
2. (Derb.) A piece of lead ore. (Davies) A variation of pea.

Peeler. An iron implement with flattened end and ring handle, used by a baller in placing blooms, ingots. etc., in a reheating furnace. (Standard)

Peevy. Same as Peavy.

Peg. 1. To mark out a miner's claim by pegs at the four corners, each bearing the claimant's name. (Webster). Sometimes used as peg out. 2. A surveyor's mark. 3. (Forest of Dean). *See* Notchsticks.

Pegado (Colom.). A local and small deposit of pay dirt. (Halse)

Pegador (Sp.). Foreman in charge of blasting. (Dwight)

Peganite. A hydrous phosphate of aluminium occurring in crystalline crusts of a green color. (Century)

Pegar (Sp.). To fire the loaded drill holes. (Dwight)

Pegging (Aust.). Act of marking by pegs. (Webster)

Peggy (York.). Synonymous with Pick. (Gresley)

Pegmatite; Giant granite. An igneous rock, generally coarse grained but usually irregular in texture and composition, composed mainly of silicate minerals of large size, including quartz, feldspar, muscovite, biotite, tourmaline, beryl, lithia minerals, zircon, etc. Some pegmatites carry minerals containing rare earth metals, tin, tungsten, tantalum, urannium, and others. (U. S. Geol. Surv.)

Pegmatitic; Pegmatoid. Characteristic of, pertaining to, formed of, containing, or occurring in pegmatite. (La Forge)

Pegmatization. Metamorphic alteration to pegmatite. (Standard)

Peirce-Smith Process. A basic-converting process for copper matte in a magnesite-lined converter. The iron of the matte is fluxed by silica added before the process begins. (Liddell.)

Pelagic; Pelagian. Formed in deep water far from land; said of some marine deposits and contrasted with Terrigenous. (La Forge)
2. Opposed to Littoral which belongs to the sea shore, and Estuarine to that formed in an estuary. (Power)

Pelagite. A name given to certain manganese nodules obtained in deep-sea soundings. (Chester)

Pelatan-Clerici process. A continuous process of dissolving silver or gold in cyanide solution and simultaneously precipitating the precious metals with mercury in the same vessel, an electrical current assisting precipitation. (Liddell)

Pelatan furnace. A furnace for the calcination of fine pyritic or other sulphide ores. (Peters, p. 173)

Peldon (So. Staff.). Hard and compact siliceous rock found in coal mines. (Gresley)

Pelionite. A name proposed by W. F. Petterd for a bituminous coal (Pelion coal) resembling English cannel coal, from near Monte Pelion, Tasmania. (Bacon)

Pele's hair. A fibrous, basaltic glass from the Hawaiian Islands, named after a local goddess. (Kemp)

Pelite. In general, any sedimentary rock, indurated or not, formed of clay. Especially, a thick-bedded argillaceous sedimentary rock lacking a shaly fracture; a mudrock. (La Forge)

Pelitic. Pertaining to, characteristic of, or formed of pelite; composed of fine argillaceous sediment or clay. (La Forge)

Bella. 1. (Sp.) A mass of metal in its crude state. 2. (Mex.) Amalgam left after the mercury has been squeezed out. (Halse)

Pella; Plata Pella (Mex.). Silver amalgam. (C. and M. M. P.)

Pelo (Peru). Stibnite in very small needles. (Halse)

Pelt (Scot.). Carbonaceous stone associated with a coal seam. *See also* Bone (Barrowman). Waste; rubbish.

Pen. 1. (Scot.). In longwall working, a narrow airway, more particularly an airway formed along the solid coal. (Barrowman)
2. A device to dam or pen the water in a stream; a dam. (Webster)

Peña (Sp.). 1. A large stone or rock in its natural state. Rock; cliff; a term used in southwestern United States. 2. A large sledge hammer. 3. (Colom.). Bed rock or bottom; *P. hervida, picadora ó caladora,* fissured and porous bed rock; *P. mara,* carmine-colored and spotted bed rock; *P. falsa,* false bed rock. 4. (Colom.) County rock. (Halse)

Penarth beds (Eng.). The beds between the Trias and Lias; so called from their occurrence at Penarth, in Somersetshire. (Oldham)

Pencatite. *See* Predazzite.

Pencil. (N. Y. and Pa.). A bluestone quarryman's term for interbedded shale in bluestone deposits. (Bowles)

Pencil mark (Ballarat, Aust.). A thin bed of dark slate about the thickness of the lead of a carpenters pencil, which is parallel with the indicator (Power). *See* Indicator, 4.

Pencil stone. A compact variety of pyrophyllite used for making slate pencils. (Webster)

Pendiente (Sp.). 1. Slope or declivity. 2. Gradient; grade. 3. Dip. 4. Hanging wall or roof. (Halse)

Pendulum buffer (Vt.). Large wooden blocks covered with felt pads that are propelled back and forth by means of a crank and pitman (Bowles). Used for polishing monumental stone.

Peneplain. A surface of slight relief and very gentle slopes, formed by the subaerial degradation of the land almost to baselevel; the penultimate state of the old age of the land produced by such degradation. 2. By extension, such a surface uplifted to form a plateau and subjected to renewed degradation and dissection. (La Forge)

Peneplanation. The subaerial degradation of a region approximately to base level, forming a peneplain. (La Forge)

Penetrating pulley. A pulley around which a wire cable runs in cutting marble. Its thickness is less than the diameter of the wire and, consequently, it can follow the wire as the latter cuts into the stone. (Bowles)

Penetration. 1. In laboratory investigations of paraffin, waxes, etc., the distance, expressed in tenths of a millimeter, penetrated by a No. 2 cambric needle operated in a machine for the purpose and under known conditions of loading, time, and temperature. The degree of solidity of bituminous materials. 2. In construction, the entrance of bituminous material into the interstices of the metal of the roadway. (Bacon)

Penetration method. The method of constructing a bituminous macadam pavement by pouring or grouting the bituminous material into the upper course of the road metal before the binding of the latter has been completed. (Bacon)

Penetration twin. A twin crystal in which the two parts interpenetrate each other: contrasted with Contact twin. (La Forge)

Penistone series (Eng.). The lower division of the coal measures, consisting of sandstone and shales with coal and ironstone. (Century)

Penitent (Fr.). A fireman who, in early coal mining days, was employed to explode (purposely, in order to get rid of it) the fire damp. So called on account of the resemblance of his dress to that of certain religious orders. (Gresley)

Pennine system (Eng.). The original and typical series of carboniferous rocks, comprising the Upper old red sandstone, the Mountain limestone, the Millstone grit, and the coal-measures. The correlated strata in the United States are the Catskill red sandstone and carboniferous series, exclusive of the Permian. (Standard)

Penning. *See* Cribbing, 2.

Penninite. A green crystallized chlorite from the Penninie Alps. Composition essentially the same as clinochlore, $H_8(Mg.Fe)_5Ai_2Si_3O_{18}$. (Dana)

Pennsylvanian. The second of the three epochs comprised in the Carboniferous period, in the classification generally used by American geologists. Also the series of strata, formerly called the Coal Measures, deposited during that epoch. It is equivalent to the Dimetian epoch and series of the classification used by many European geologists. (La Forge)

Pennystone. 1. A band of clay ironstone. (Gresley)
2. (Eng.) *See* Penistone series.

Pennyweight. A unit of weight equal to 24 grains, 0.05 troy ounce, 0.0549 avoirdupois ounce, and 1.5552 grams. A pennyweight of fine gold has a value of $1.0335 or 4.25 shillings.

Pensky-Marten tester. An instrument somewhat similar to the Abel apparatus, largely employed for determining the flashing point of lubricating oils by the close test. (Mitzakis)

Penstock. 1. A sluice or gate for restraining, deviating or otherwise regulating the flow of water, sewage, etc.; a floodgate. 2. A closed conduit, tube, or pipe for conducting water, as to a water wheel. 3. The barrel of a wooden pump. (Webster)

Pentagonal dodecahedron. In the isimetric system, a form, of pyritohedral symmetry, enclosed by twelve faces, each parallel to one axis and cutting the other two axes at unequal distances; a pyritohedron. (La Forge)

Pentavalent. Having a valence or combining power of five. (Webster)

Pentelic marble. One of the most famous of ancient statuary marbles; from Mt. Pentellicus, near Athens, Greece. (Merrill)

Penthouse; Penthus. A wooden hut or covering for the protection of men when shaft sinking (Gresley). Also called Pentice.

Pentice. *See* Penthouse.

Pentlandite. A sulphide of iron and nickel, (Fe,Ni)S; 42 per cent iron; 22 per cent nickel. (Dana)

Pentrough. The trough in which the penstock of a water wheel is placed. (Century)

Peón. 1. (Mex.) Helper; a common laborer. *P. suelto*, roustabout. 2. The movable vertical post of an *arrastre*. 3. A prop, post, or stall. (Halse)

Pepe (short of Joseph) (Sp.). A boy who holds the light for the *barretero*, and assists him in other ways at certain hours. (Rockwell)

Pepena (Mex.). 1. Rich ore; smelting ore. 2. Picked ore. 3. The act of picking, sorting, or cobbing. (Halse)

Pepenado (Mex.). Dressed ore. (Dwight)

Pepenador (Mex.). Ore sorter. (Dwight)

Pepenadores (Sp.). Ore cleaners. (Davies)

Pepenar (Mex.). To sort ore. (Dwight)

Peperino. A kind of volcanic rock, formed by the cementing together of volcanic sand, cinders, scoriæ, etc. (Comstock)

Peperita (Sp.). Volcanic sand. (Halse)

Pepita (Sp.). A nugget, usually of gold, but may be of silver or platinum. (Halse)

Pequenes (Chile). Heaps or piles formerly used for roasting copper ores, with firewood as fuel. (Halse)

Perch. 1. A measure of masonry containing 24¾ cu. ft., 16½ by 1½ by 1. It is usually taken as 25 cubic feet. The term is falling into disuse and varies locally. (Merrill)
2. A measure of length equal to 5½ yards; a rod; or pole; *also* a square rod. (Webster)

Perched blocks (*blocs perchés*). *See* Perched rock.

Perched rock. A large mass of rock which, after glacial transportation, has been lodged in some conspicuous isolated position. Called also Perched block. (Standard)

Percolate. To pass through fine interstices; to filter; as water percolates through porous stones. (Webster)

Percussion cap. *See* Detonator; Primer.

Percussion figure. A figure consisting of radiating lines formed in such minerals as mica and chlorite by a blow with the point of a somewhat sharp instrument (Dana). Called also Strike figure.

Percussion powder. Powder so composed as to ignite by a slight percussion; fulminating powder. (Webster)

Percussion sieve. An apparatus in which ore is sorted according to size. It consists essentially of superimposed, oppositely inclined sieves, both mechanically agitated by vertical lever and having water sluices. (Webster)

Percussion system of drilling. *See* Drilling; Freefall, and Churn drill, 1.

Percussion table. An inclined table, agitated by a series of shocks, and operating at the same time like a buddle. It may be made self-discharging and continuous by substituting for the table an endles rubber cloth, slowly moving against the current of water, as in the Frue vanner. (Raymond)

Percussive. Of, or pertaining to, percussion; operative or operated by striking, as a percussive drill. (Webster)

Pérdida (Mex.). Loss in *patio* amalgamation. Loss in general. *See also* Consumida. (Dwight)

Perfil (Sp.). Profile; side elevation. (Halse)

Perforadora (Sp.). A machine drill. (Dwight)

Perforar (Sp.). To bore a deep bore hole; *P. un túnel,* to tunnel. (Halse)

Perfumery oil. A refined Russian petroleum. The finest quality is used in pharmacy as *paraffinum liquidum.* (Bacon)

Periclase. Magnesia, MgO. In cubes or octahedrons, and in grains. Cleavage cubic. (Dana)

Periclinal. Dipping in all directions from an elevated center (Power). *See also* Quaquaversal.

Pericline. A variety of albite. (Dana)

Pericline twin. A twin crystal, in the monoclinic system, whose twinning axis is the orthoaxis of the crystal. (La Forge)

Peridot. The gem variety of olivine. (A. F. Rogers)

Peridotite. A granular igneous rock composed essentially of olivine, generally with some form of pyroxene, and with or without hornblende, biotite, chromite, garnet, etc, (La Forge)

Perimorph. A mineral of one species inclosing one of another species. *See also* Endomorph. (Webster)

Period. The unit of geologic time of the second rank; a division of an era. The coordinate stratigraphic unit is System. (La Forge) The geological application of the word varies with different authors. In the scheme of nomenclature proposed by the International Geological Congress *period* is the chronological term of the second order, to which *system* is the corresponding stratigraphic term; as Silurian *period* or system. In the scheme of the United States Geological Survey *period* has the same rank, but its corresponding stratigraphic term is *system.* (Standard)

Periodic law. One of the fundamental chemical laws that the properties of an element are periodic functions of the atomic weight (Liddell). It is also called Mendeleeff's law.

Periodic system. A classification of the elements according to Mendeleeff's law. (Webster)

Peripheral moraine. A minor terminal moraine, marking only a temporary halt of the glacier during recession. Also called Moraine of recession. (Standard)

Peristerite. A whitish adularia-like albite, slightly iridescent. (Standard)

Perito (Mex.). An expert in any science or art (Dwight). An appraiser; a skillful workman. (Halse)

Perjong (Malay). A crowbar. (Locl)

Perkins. An imperfectly burned brick; a place brick. (Standard)

Perkins joint. A joint consisting of threaded pipe and coupling, both threaded straight (no taper). The one end of the pipe is left square and the other is beveled to a knife edge at midthickness. Used in Baku oil field. (Nat. Tube Co.)

Perknite. A name from the Greek word for dark, and proposed by H. W. Turner as a collective term for the rocks usually called pyroxenites and hornblendites. Mineralogically the perknites consist chiefly of monoclinic pyroxene and amphibole with subordinate orthorhombic pyroxene, olivine, and feldspar. Chemically they are lower in alumina and alkalies than the diorites and gabbros, and lower in magnesia than the peridotites. (Kemp)

Perla (Mex.). An assay bead. (Dwight)

Perlite. 1. Volcanic glass with concentric, shelly texture and usually with a notable percentage of water. (Kemp)
2. *See* Pearlite, 2.

Perlitic. Resembling perlite; concentrically lamellar: applied to a microscopic structure in glassy rocks resembling that of an onion. (Standard)

Permanent monument. A monument of a lasting character for marking a mining claim. It may be a mountain, hill, ridge, hogback, butte, canyon, gulch, river, stream, waterfall, cascade, lake, inlet, bay, arm of the sea, stake, post, monument of stone or bowlders, shafts, drifts, tunnels, open cuts, or well known adjoining patented claims. (Meydenbauer *v.* Stevens, 78 Fed. Rept., p. 792.) (Also U. S. Min. Stat., pp. 227–231.)

Permian. The last of the three epochs comprised in the Carboniferous period, in the classification generally used. Also the series of strata deposited during that epoch. By some geologists the Permian is ranked as a period and system. (La Forge)

Permissible. That may be permitted; allowable; admissible. (Webster)

Permissible explosive. An explosive similar in all respects to samples that passed certain tests by the Federal Bureau of Mines, and used in accordance with the following conditions: 1. That the explosive is in all respects similar to the sample submitted by the manufacturer for test. 2. That detonators—preferably electric detonators—are used of not less efficiency than those prescribed, namely, those consisting by weight of 90 parts of mercury fulminate and 10 parts of potassium chlorate (or their equivalents). 3. That the explosive, if frozen, shall be thoroughly thawed in a safe and suitable manner before use. 4. That the quantity used for a shot does not exceed 1½ pounds (680 grams), and that it is properly tamped with clay or other noncombustible stemming.

After an explosive has passed the required tests and its brand name has been published in a list of permissible explosives, it is not a permissible explosive if one or more of any of the following conditions prevail: 1. If kept in a moist place until it undergoes a change in character. 2. If used in a frozen or partly frozen condition. 3. If used in excess of 1½ pounds (680 grams) per shot. 4. If the diameter of the cartridge is less than that designated in the column "smallest permissible diameter." 5. If fired with a detonator or electric detonator of less efficiency than that prescribed. 6. If fired without stemming. 7. If fired with combustible stemming. (Tech. Paper 169, U. S. Bur. Mines.) For use in gaseous and dusty coal mines.

Permissible motors. A motor the same in all respects as a sample motor that has passed certain tests made by the Federal Bureau of Mines and installed and used in accordance with the conditions prescribed by the bureau. *See* Explosion-proof motor.

Permitted explosives (Eng. and Aust.). Certain explosives allowed to be used in fiery mines (mentioned periodically in "Statutory Rules and Orders," issued by the Home Office, London), which are supposed to be safe (Power). The term Permissible is used in the United States.

Pernetti. 1. (It.) In ceramics, iron or hard pottery pins or tripods to support an article in a kiln; stilts; spurs. 2. The marks left on a baked article of pottery by the supporting pins; pernetti marks. (Standard)

Pernot furnace; Post-Pernot furnace. A reverberatory puddling or smelting furnace, having a circular, inclined revolving hearth (Raymond). Used in making steel.

Perovskite; Perofskite. Calcium titanate, $CaTiO_3$. Isometric. Luster adamantine to metallic-adamantine. Color pale-yellow, honey-yellow, orange-yellow, reddish-brown, grayish-black. Transparent to opaque. (Dana)

Perol (Colom.). A small iron pan in which a pestle works for grinding and amalgamating gold-bearing pyrite. (Halse)

Perpend. 1. A header extending through a wall so that one end appears on each side of it; a perpend-stone; border; bondstone; through-stone or through-binder. Called also, Parping; Perpender; Perpent. 2. A vertical joint, as in a brick wall. (Standard)

Perpendicular throw. The distance between the two parts of a disrupted bed, dike, vein, or of any recognizable surface, measured perpendicularly to the bedding plane or to the surface in question. It is measured, therefore, in a vertical plane at right angles to the strike of the disrupted surface. (Lindgren, p. 123)

Perpeno (Sp. Am.). Cleaning up. (Lucas)

Perpetuity. An annuity whose payments are supposed to continue forever. (E. B. Skinner, p. 77)

Pershbecker furnace. A continuously-working shaft-furnace for roasting quicksilver ores, having two fire places at opposite sides. The fuel is wood. (Raymond)

Persian red. *See* Indian red.

Persilicic. Containing more than 60 per cent of silica: said of some igneous rocks; same as and much to be perferred to Acid and Acidic, which it is replacing. (La Forge)

Pertenencia (Mex.). Mining claim. Under the modern Mexican mining law, a square of land 100 meters on a side (*i. e.*, 1 hectare=2.471 acres) is the minimum unit. This unit is called a *pertenencia* (Dwight). In Peru, equals 2 hectares, or 200 m. long by 100 m. wide; in Argentine, 300 m. by 200 m. to 300 m., according to dip; in Colombia, 600 m. by 240 m., a lode mining claim equaling three of these. (Halse)

Perthite. A variety of feldspar consisting of closely interlaminated orthoclase or microcline and albite. (La Forge) A name given by Thomson to parallel intergrowths of orthoclase and albite, originally described from Perth, Ontaria. (Kemp)

Pervious bed. A bed or stratum that contains voids through which water will move under ordinary hydrostatic pressure. (Meinzer)

Pesador (Mex.). A weighmaster. (Dwight)

Peso (Sp.). 1. A Spanish or Mexican dollar.
2. A monetary unit and silver coin of the Philippines worth $0.50.
3. A variable silver coin of several Central and South American countries. 4. Weight, gravity; *P. bruto*, gross weight; *P. neto*, net weight. 5. Balance; scales; *P. de muelle*, spring balance. (Halse)

Pestle. 1. An implement for pounding and breaking or braying substances in a mortar. 2. Any of various instruments for pounding or stamping, as a stamp in a stamp mill. 3. To pound, pulverize, bray, or mix, as with a pestle. (Webster)

Petalite. A lithium-aluminum silicate, $LiAl(Si_2O_5)_2$, or, $Li_2O.Al_2O_3.8SiO_2$, usually massive, foliated and cleavable. (Dana)

Petaloid. Having the form, texture, or appearance of a petal (Webster). Applied to the structure seen in minerals that split up into pieces with a smooth polished concave-convex surface which fit into one another somewhat like the petals of an unopened flower bud. (Power)

Petanque; Petlanque (Mex.). Ruby silver. Tetrahedrite, and other rich silver minerals. (Dwight)

Petary. *See* Peatery.

Peter; Peter out. To fail gradually in size, quantity, or quality (Raymond). *e. g.* The mine has *petered* out.

Petit granite marble. A bluish marble studded with innumerable fine white points caused by fossil crinoids and polyps; from Ecausines, Belgium. (Merrill)

Petlanque (Sp.). The same as pyrargyrite. In Chili it is called *Rosicler oscuro.* (Century). Also silver ores which are conspicuous in the matrix for example, *petlanque colorado* is the red antimonial silver whether crystallized or otherwise. (Min. Jour.)

Petra dura (Italy). Hard and fine stones in general, as those used for inlay and the like, in distinction from the softer stones used in building. (Webster)

Petralite. An explosive composed of saltpeter, wood or charcoal, and antimony. (Webster)

Petralogy. *See* Petrology.

Petre. Niter, saltpeter. (Webster)

Petrean. Of, or pertaining to, rock, rocky. (Webster)

Petrescence. The process of changing into stone; petrifaction. (Standard)

Petrical. Fletcher's name for the coarser structural features of rocks. *See* Lithical. (Kemp)

Petrifaction. The process of petrifying, or changing into stone; conversion of organic matter, including shells, bones, etc., into stone or a substance of stony hardness. (Webster)

Petrified wood. *See* Wood, 2.

Petrify. To become stone. Organic substances, such as shells, bones, wood, etc., embedded in sediments, become converted into stone by the gradual replacement of their tissues, particle by particle, with corresponding amounts of infiltrated mineral matter. Thus not only the outward forms but even the minutest details of the organic tissues are preserved. (Roy. Com.)

Petro. 1. A stone or rock. 2. A proprietary name for liquid petrolatum.

Petrocene. A greenish-yellow hydrocarbon with a pearly luster and needle-like crystals, obtained by the distillation of petroleum residue at a red heat. (Bacon)

Petrogeny. That branch of petrology which treats of rocks as parts of the earth's crust, and of their origin, mode of formation, and geologic relations, and which is studied mainly by means of field investigations. (La Forge) *Compare* Petrology and Petrography.

Petrographer. One who is versed in or engaged in petrography, or the study of rocks. (Century)

Petrographic microscope. The same as Polarizing microscope.

Petrographic province. A region or district in which some or all of the igneous rocks are regarded as consanguineous, or as derived from a common parent magma; a comagmatic district. (La Forge)

Petrography. That branch of petrology which treats of rocks as mineral aggregates, aside from their geologic relations, and is studied mainly by laboratory methods, largely chemical and microscopical. Also, loosely, petrology or lithology. (La Forge) The description and systematic classification of rocks. (Webster)

Petrol. A variant for petroleum or its derivatives, particularly gasoline or motor spirit. (C. and M. M. P.)

Petrolatum. A neutral, tasteless, odorless substance derived from the distillation of petroleum. Three forms are recognized: *liquid*, a colorless, or yellow oil; *soft*, a white or yellowish semisolid substance; *hard*, a white or yellowish waxlike mass (Webster). Called also in the trade, by different makers, Cosmoline, Saxoline, Vaseline, Petroline, etc. (Standard)

Petrolatum liquidum. The medicinal high-boiling petroleum oil of the United States Pharmacopoeia. *See* Petrolatum. (Bacon)

Petrolatum oil. A colorless, straight-reduced, viscous, neutral oil, possessing a gravity of 32¾° to 34° Bé., a flash-point of 415° F., a fire test of 480° F., a cold test of 20° F., and a viscosity of 185 to 200. It is also termed 'medicinal oil.' (Bacon)

Petrolene. A liquid hydrocarbon mixture obtained from bitumen or asphalt. (Century)

Petróleo (Sp.). Petroleum. (Dwight)

Petroleum. An oily, inflammable, liquid mixture of numerous hydrocarbons, chiefly of the paraffin series, found in the earth. The petroleums found in different areas vary widely in composition and appearance (U. S. Geol. Surv.). The best known of the bitumens, and, next to coal, the most important of all carbon compounds. It occurs naturally, oozing. from crevices in rocks, floating on the surface of water, or in subterranean deposits in rocks, from which it may be obtained by boring. (Bacon). Also known as Rock oil, Mineral oil, Natural oil, Coal oil, Earth oil, Seneca oil.

Petroleum is a mineral, and the same may be said of salts and phosphates, and of clay containing alumina and other substances in the earth. (Union Oil Co., In re 23 Land Decisions, p. 229)

Lands chiefly valuable for the deposits of petroleum contained therein are mineral lands within the meaning of the mining laws, and subject to location and entry as such. (Union Oil Co., In re, 25 Land Decisions, p. 357; Tulare Oil and Min. Co., *v.* So. Pac. R. R. Co., 29 Land Decisions, p. 271; Chrisman *v.* Miller, 197 U. S. p. 320)

Deposits of petroleum oil come within the definition of mineral character of land, and is sufficient to exclude such land from a railroad grant if discovered before patent issues. (So. Pac. R. R. Co., In re, Land Decisions, p. 265)

Oil or petroleum lands are mineral lands within the meaning of that term in this grant. (Burke *v.* So. Pac. R. R. Co., 234, U. S. p. 669)

Petroleum asphalt. The residues of asphalt-base petroleum, known commercially as petroleum asphalt. (Bacon)

Petroleum benzine. The petroleum benzine of the German Pharmacopoeia consists of the colorless, nonfluorescent portions of petroleum, possessing a specific gravity of 0.640 to 0.670, and distilling almost entirely between 55° and 75° C. *See* Benzine, Light petroleum, and Canadol. (Bacon)

Petroleum briquet. A briquet made of petroleum, soft soap, resin, and soda-lye wash. The mixture is heated, allowed to solidify, run into molds, and then heated in a furnace for about 15 minutes. (Bacon)

Petroleum car. A railroad car carrying a tank or tanks, designed for the transportation of petroleum in bulk (Century). A tank car.

Petroleum coke. The residue obtained by the distillation of petroleum. It usually shows the following composition: Volatile and combustible matter, 5 to 10 per cent; fixed carbon, 90 to 95 per cent; ash, from a trace to 0.3 per cent; sulphur, from 0.5 per cent to 1 per cent. On account of its purity it has found application in metallurgical processes and in making battery carbons and carbon pencils (electric carbons). (Bacon)

Petroleum ether. A volatile inflammable liquid used as a solvent for caoutchouc, oils, etc. (Webster). Some refiners have applied this designation to the products ranging in specific gravity from 0.590 to 0.666 (108° to 80° Bé.) that is, cymogene, rhigolene, and gasoline. *See* Benzine, Canadol, Light petroleu, Keroselene, and Sherwood oil. Russian petroleum ether varies in specific gravity from 0.650 to 0.660 at 15° C. (Bacon). Also frequently applied to naphtha.

Petroleum furnace. A furnace for burning petroleum, as under a steam boiler. (Century)

Petroleum naphtha. A term which is loosely employed; it often denotes the first fraction (b. p., up to 150° C.) obtained on distillation of crude oil, but is also applied to any low-boiling petroleum product, as Naphtha, Benzine, etc.

Petroleum ointment. A variety of petrolatum.

Petroleum pitch. *See* Pitch, 6.

Petroleum spirit. A volatile liquid obtained by the distillation of petroleum (Webster). A term variously used, but is sometimes applied to a petroleum distillate of a density of 0.71 to 0.74 and a boiling point of 90° to 140° C. It is used as a solvent. (Bacon)

Petroleum still. A still for separating the hydrocarbon products from crude petroleum. (Standard)

Petroleum tailings. *See* Residuum, 1.

Petroliferous. Containing or yielding petroleum. (Standard)

Petroline. A solid substance, analogous to paraffin, obtained in the distillation of Rangoon petroleum. Also, a term applied to a Scottish oil having a flash point of 126° F. (Bacon)

Petrolize. To treat or impregnate with petroleum, or a petroleum product. (Webster)

Petrology. The science of rocks, treating of their origin, construction, etc., from all aspects and in all relations; lithology. It includes petrogeny and petrography. (La Forge)

Petrosilex. An old name for extremely fine, crystalline porphyries and quartz-porphyries and for those finely crystalline aggregates we now know to be devitrified glasses; also for the ground masses of the former, which though not glassy are yet not resolvable by the microscope into definite minerals. *See also* Felsite, Microfelsite. It was practically a confession by the older petrographers that they did not know of what the rock consisted. (Kemp) Also called Hornstone.

Petrous. Hard, like stone; as, *petrous* phosphates; *petrous* marl. (Standard)

Petuntze (China). A variety of feldspar that is mixed with kaolin, and used by the Chinese in the manufacture of porcelain. (Standard)

Petzite. Telluride of silver and gold, $(Ag,Au)_2Te$. The gold content ranges from 18.2 to 25.6 per cent and the silver from 40.7 to 46.8 per cent. (U. S. Geol. Surv.)

Pewter. 1. An alloy of tin and lead. Other metals are often added, or the lead is replaced entirely with copper, zinc, antimony, etc. (Raymond)

2. A marble-worker's polishing material, made by calcining tin. (Standard)

Pewterer's solder. Hard pale solder, or middling pale solder. (Standard)

Pewter mill. A lapidary's wheel used for stones of the hardness of amethyst, agate, etc. (Webster)

Peya de cobre (Mex.). Copper amalgam. (Dwight)

Pez (Sp.). 1. Pitch; tar; *P. mineral*, asphalt. 2. *Peces*, more or less isolated lenses of coal. (Halse)

Phacolite. A colorless variety of chabazite in twins of lenticular shape. (Webster)

Phacolith. A lenticular mass of igneous rock intruded between adjacent strata in the apex of a fold. (La Forge) Literally, 'lens-rock.'

Phanerite. Any phanerocrystalline igneous rock. (Webster)

Phanerocrystalline. Having all crystals large enough to be seen with the unaided eye; that is, megascopically crystalline (Iddings, Igneous Rocks, p. 191). Opposed to cryptocrystalline.

Phantom crystal. A crystal in which an earlier stage of crystallization is marked in some way. (A. F. Rogers)

Pharmacites. A word used by M. E. Wadsworth to include all minerals employed in medicine. (Power)

Pharmacolite. A hydrous arsenate of calcium. Probably $HCaAsO_4+2H_2O$. (Dana)

Pharmacosiderite. A hydrous arsenate of iron, perhaps $6FeAsO_42Fe(OH)_3+12H_2O$, commonly occurring in green or yellowish-green cubic crystals. (Webster)

Phase. **1.** A variety differing in some minor respect from the dominant or normal type; a facies: ordinarily used in the detailed description of igneous rock masses. (La Forge) **2.** In physical chemistry, a homogeneous, physically distinct portion of matter in a non-homogeneous system, as the three *phases*—ice, water, and aqueous vapor. **3.** In physics, the point or stage in the period to which the rotation, oscillation, or variation has advanced, considered in its relation to a standard position or assumed instant of starting. This relation is commonly expressed in angular measure. (Webster)

Phase angle. The angle expressing phase, or phase difference. (Webster)

Phase converter. A machine for converting an alternating current into an alternating current of a different number of phases and the same frequency. (Webster)

Phase displacement. A change of phase whereby an alternating current attains its maximum earlier or later. An inductance would cause a lag, a capacity would cause an advance, in phase. (Webster)

Phase meter. A device for measuring the difference in phase of two alternating currents or electromotive forces. (Webster)

Phase rule. A generalization with regard to two systems of chemical equilibrium, discovered by Prof. J. W. Gibbs. It may be stated thus: The degree of variableness (number of degrees of freedom) of a system is equal to the number of components minus the number of phases, plus two. Thus, if the components be salt and water, and the phases, salt, ice, saturated solution, and vapor, the system is invariant; that is, there is only one set of conditions under which these four phases can exist in equilibrium. If only three phases be considered, the system is univariant; that is, fixing one condition, as temperature determines the others. (Webster)

Phassachate. A lead-colored agate. (Standard)

Phátáng (No. Himalaya). A quantity of gold-dust melted into a lump, having a value of about 8 rupees (16s.), and used as currency. (Lock)

Phenacite. A beryllium ortho-silicate, Be_2SiO_4. Sometimes used as a gem. (Dana)

Phengite. **1.** A kind of transparent or translucent stone, used by the ancients for windows. It was probably selenite or crystallized gypsum. **2.** A variety of muscovite. (Webster)

Phenix-stone. An artificial stone in which furnace-slag is used in place of sand. (Century)

Phenocryst. A porphyritic crystal; one of the relatively large and ordinarily conspicuous crystals of the earliest generation in a porphyritic igneous rock. (La Forge) A name suggested by J. P. Iddings, for porphyritic crystals in rocks. It has proved an extremely convenient one, although its etymology has been criticized. It may be best to change to phanerocryst, just as in botany, phenogam has yielded to phanerogam; but one form or the other is a necessity. (Kemp)

Phenocrystalline. Same as phanerocrystalline.

Phenocrystic. Containing, characterized by, or pertaining to phenocrysts. (Standard)

Phenol. A colorless or pinkish crystalline substance, C_6H_5OH, produced by the destructive distillation of many organic bodies, as wood, coal, etc., and obtained from the heavy oil from coal tar. Commonly known as carbolic acid. (Webster)

Philadelphite. A pearly, brownish-red, micaceous vermiculite that occurs in contorted and wrinkled plates. (Standard)

Philippium. A supposed metallic element discovered in the mineral samarskite. It proved to be a mixture of yttrium and terbium. (Webster)

Phillipite. A compact, blue, hydrated copper and iron sulphate, $Fe_2Cu(SO_4)_4.12H_2O$, produced by decomposition of chalcopyrite. (Standard)

Philosopher's stone. An imaginary stone, or solid substance or preparation, believed to have the power of transmuting the baser metals into gold or silver, and hence much sought for by the alchemists (Webster)

Philosopher's wool. *See* Zinc oxide.

Phlegraean fields. The country around Naples, so named by the Greeks, from the traces of igneous action everywhere visible. Also called Campi Phlegraei or the Burnt fields. (Comstock)

Phlogiston. A flame; a blaze. The hypothetical principle of fire or inflammability formerly regarded as a material substance. (Webster)

Phlogiston theory. The theory that every combustible substance is a compound of phlogiston and the phenomena of combustion are due to phlogiston leaving the other constituent behind. It has been replaced by a modern theory which assigns to oxygen the leading rôle in chemical changes. (Webster)

Phlogopite. A magnesium mica, near biotite in composition, but containing little iron. (Dana)

Pholerite. A clay-like mineral closely related to or identical with kaolinite. (Century)

Pholidolite. A grayish-yellow, hydrous silicate of potassium, magnesium, iron and aluminum in minute crystalline scales. (Webster)

Phonolite. An aphanitic or aphanophyric igneous rock consisting of essential orthoclase or anorthoclase and nephelite, and accessory amphibole, pyroxene, or mica. (La Forge) Leucite may replace the nephelite and yield leucite-phonolites. The name is Klaproth's rendering into Greek of the old name Clinkstone. (Kemp)

Phosgene. A heavy gas made by combining carbon monoxide and chlorine. $COCl_2$, used for bleaching glass; also used in warfare.

Phosgenite. A chlorocarbonate of lead, $Pb_2Cl_2CO_3$, occurring in tetragonal crystals of a white, yellow, or grayish color and adamantine luster (Webster). Called also Corneous lead, Horn lead

Phosphate of lime. *See* Apatite.

Phosphate rock. A sedimentary rock containing calcium phosphate. The form in which the phosphate occurs is obscure (U. S. Geol. Surv.). The three main classes which have been exploited in the United States are *land rock*, occurring in clayey, gravelly, or compacted beds below the surface of the earth; *river rock*, a darker variety obtained from river and stream beds, and the *oölitic* phosphates of Tennessee. (Webster)

Phosphates. Salts formed by combining phosphoric acid with an alkali. Sodium, potassium, ammonium and calcium phosphates are used in fertilizers. None of these are used to a large extent except the calcium phosphate. *See* Phosphate rock.

Phosphatic slag. Same as Basic slag. (Standard)

Phosphine. A hydride of phosphorus, PH_3, analogous to ammonia. (Webster)

Phosphor bronze. A kind of bronze of great hardness, elasticity, and toughness, whose superiority is due to the introduction of a small amount of phosphorus, usually as a compound of copper (phosphor copper) or with tin (phosphor tin). (Webster)

Phosphor copper. An alloy made by fusing granulated copper with bone ash and charcoal; used in making phosphor bronze. (Standard)

Phosphorescence. The continued emission of light by a substance (not incandescent) produced especially after heating, exposure to light, or to an electrical discharge. (Dana)

Phosphoric acid. Any of three oxyacids of phosphorus known respectively as ordinary or orthophosphoric acid, H_3PO_4; pyrophosphoric acid, $H_4P_2O_7$, and metaphosphoric acid, HPO_3. (Webster)

Phosphorite. Massive calcic phosphate, of the composition of apatite, but usually lacking crystal form. (Kemp)

Phosphorize. To combine or impregnate with phosphorus. (Century)

Phosphor tin. An alloy made by heating phosphorus (6 parts) with tin-sponge (94 parts); used in making phosphor bronze. (Standard)

Phosphorolite. Wadsworth's name for phosphatic rocks, guano-phosphorite, apatite, etc. (Kemp)

Phosphorus. A nonmetallic element of the nitrogen group, usually obtained as a white or yellowish, translucent, waxy substance with a disagreeable smell and a faint glow in moist air. Symbol, P.; atomic weight, 31.04; specific gravity, 1.83. (Webster)

Phosphorus disease. A disease of workers in phosphorous, marked especially by necrosis of the jaw bone (Webster). Called also Phosphor-necrosis.

Phosphorus steel. Steel in which phosphorus is the principal hardening element. Good steel may contain 0.3 per cent phosphorus, but the carbon must be very low. (Webster)

Photoceramics. The art or practice of photographing on china or pottery. (Standard)

Photogene. A trade name for a shale-oil distillate, of specific gravity from 0.72–0.81 and boiling point from 145°–150° C. It is used as an illuminating oil. (Bacon)

Photomicrograph. An enlarged or macroscopic photograph of a microscopic object, taken by attaching a camera to a microscope. (Webster)

Photoxylon. Guncotton in which the cellulose of wood pulp is used instead of cotton. (Standard)

Phreatic. Of or pertaining to a well; applied to underground waters reachable, or probably reachable, by drilling wells. (Webster)

Phreatic explosion. An explosion occurring in the roof of an igneous body, due to the expansion of volatile matter, and not extruding incandescent matter. (Daly, p. 282)

Phrygian marble. *See* Pavonazette.

Phthanite. Hauy's name for siliceous schists. Its use has recently been revived in America by G. F. Becker, who applies it to certain silicified shales in California (Kemp). Chert.

Phthisis. A wasting or consumption of the tissue. Formerly applied to many wasting diseases, but now usually restricted to pulmonary phthisis, or consumption (Webster). *See* Anthracosis.

Phrygian stone. A light pumice-like stone, anciently used in dyeing. (Standard)

Phyllite. A foliated metamorphic rock of sedimentary origin and argillaceous composition, intermediate between slate and mica schist. It is more micaceous than slate and more finely crystalline than mica schist and its fracture is intermediate between the smooth even cleavage of slate and the rather splintery fissility of schist. (La Forge)

Phyllite slate. 1. Clay slate (called also *muscovite phyllade*), or, restrictedly, clay slate rendered subcrystalline by minute superinduced scales of mica (called *phyllite* alone). 2. Clay slate containing lamellæ of the mineral phyllite, and related to ottrelite. (Standard)

Phyre. A suffix used in naming rocks that are porphyritic, as vitrophyre, orthophyre, granophyre, etc. (Kemp)

Physalite. A coarse, nearly opaque variety of topaz. Same as Pyrophysalite. (Dana)

Physic. To treat (molten iron) with an oxidizing compound capable of combining with the sulphur and phosphorus. (Standard)

Physical mineralogy. That branch of mineralogy which treats of the physical properties of minerals. (La Forge)

Physics. 1. That branch of science which treats of the laws and properties of matter, and the forces acting upon it; especially that deparment of natural science which treats of the causes that modify the general properties of bodies, *e. g.*, gravitation, heat, light, magnetism, electricity, etc. (Power)
2. Also, a treatise on natural philosophy or physics. (Webster)

Physiography. Physical geography; a description of the natural features of the surface of the earth. (Power)

Phytocollite. A black gelatinous hydrocarbon, related to dopplerite; found below a peat bed at Scranton, Pa. (Bacon)

Piauzite; Piauzit. An asphaltoid substance, melting at 315° C.; it has a brownish or greenish-black color and a specific gravity of 1.220. After fusing, it burns with an aromatic odor and leaves about 6 per cent of ash. It is soluble in potassium hydroxide and in ether. (Bacon)

Picacho (Mex.). Summit of a mountain peak. (Halse)

Picador. 1. (Mex.). One who taps a furnace (Dwight).
2. In coal mining, an undercutter. (Halse)

Picar. 1. (Mex.). To tap a furnace for slag or bullion. (Dwight)
2. To hew or undercut. 3. *P. un hilo* (Colom.), to discover or strike a lode; *P. un agua*, to determine the level of a ditch. (Halse)

Pick. 1. A heavy iron or steel tool, pointed at one or both ends, and often curved, wielded by means of a wooden handle inserted in an eye between the ends; used in various forms by quarrymen, roadmakers, miners, and stone dressers; a pickax. (Webster)
2. To dress the sides of a shaft or other excavation. 3. To remove shale, dirt, etc., from coal. (Gresley)
4. To select good ore out of a heap. (Davies)

Pick-dressing. In stone cutting, a tooling of the face of a stone with a sharp pick or hammer. (Standard)

Picker. 1. A small tool used to pull up the wick of a miner's lamp. 2. A person who picks the slate from the coal in an anthracite breaker. 3. A mechanical arrangement for removing slate from coal. (Steel)
4. A hand chisel for dzhuing, held in one hand and struck with a hammer. (Raymond) *See also* Dzhu.
5. (Eng.) A sharp-pointed cutting tool used as an accessory to a mizer. (Gresley)
6. A sharp-pointed steel rod used in lifting wooden patterns from the sand after they have been rammed therein. 7. A tool for piercing a mold; a piercer. 8. A miner's needle, used for picking out the tamping of a charge that has failed to explode. 9. In brickmaking a spike-toothed shaft for breaking up clay to be fed to the hopper. (Standard)

Pickeringite. Magnesia alum, $MgSO_4Al_2(SO_4)_3+22H_2O$. In long fibrous masses; and in efflorescences. (Standard)

Picket. An iron rod, pointed at one end, and usually painted alternately red and white at one foot intervals, used by surveyors as a line of sight (B. F. Tibby) *See* Range pole.

Pick hammer. A hammer with a point, used in cobbing. (Raymond)

Picking. 1. (Scot.) The falling of particles from a mine roof about to collapse. (Barrowman)
2. Picking the eyes out of a mine is to extract over a prolonged period an undue proportion of the richest ore, thus lowering the average grade of the remaining ore reserves. (Skinner)
3. Rough sorting of ore. 4. A soft or not fully burned brick. (Webster)

Picking belt. A traveling belt made of sheet iron placed horizontally or at an angle, used for conveying coal or ore to a bin or wagon, while boys pick out rock or other waste material (Power). Rubber-covered canvas belts are also used for the same purpose.

Picking chute. A chute along which boys are stationed to pick the slate from the coal. (Chance)

Picking rod. A 1¼-inch steel rod about 20 feet long used to ram into the tap hole, while casting, to dislodge obstructions preventing a good run. (Willcox)

Picking table. A flat, or slightly inclined, platform on which the coal or ore is run to be picked free from slate or gangue.

Pickle. 1. In metal working, a bath of dilute sulphuric or nitric acid, etc., to remove burnt sand, scale, rust, etc., from the surface of castings, or other metallic articles.
2. To treat with, or steep in, pickle. (Webster)

Pickling. Cleaning sheet-iron or wire by immersion in acid. (Raymond)

Pick machine. A machine used to undermine or shear coal by heavy blows of short steel points attached to a piston driven forward and back by compressed air. Commonly called a Puncher. (Steel) *Compare* Chain-breast machine.

Pickman (Scot.). A man who digs coal with a pick; a hewer; a miner. (Barrowman)

Pick tongs. Tongs for handling hot metal. (Webster)

Pick-up (Mid.). To reduce the stock of coal. (Gresley)

Pick-ups (Alaska). Nugget gold picked up during mining operations prior to sluicing.

Pickwork. Cutting coal with a pick, as in driving headings. (Gresley)

Pico (Sp.). 1. A pickaxe. 2. A miner's pick. 3. A miner's striking hammer. 4. A small hammer used in ore sorting. 5. A peak of a mountain. (Halse)

Picota (Sp.). The top or peak of a mountain. (Halse)

Picotah. A kind of sweep used in India for raising water from well. *See also* Shadoof. (Webster)

Picotite. A variety of spinel containing chromium and iron. (Dana)

Picric acid. A yellow crystalline compound, $C_6H_3N_3O_7$, obtained variously, as by the action of nitric acid on phenol. It is used in dyeing and is an ingredient in certain explosives. Called also Carbazotic acid, Chrysolepic acid, Trinitrophenic acid (Standard). Sterilized gauze treated with a weak solution of the acid is used generally around mines in the first-aid treatment of burns, scalds, etc.

Picrite. A variety of peridotite composed essentially of olivine and augite. (La Forge)

Picrolite. A columnar or fibrous variety of serpentine. (Standard)

Picromerite. A hydrous sulphate of magnesium and potassium from the salt mines of Stassfurt. (Century)

Picture. A screen to keep off falling water from men at work. (C. and M. M. P.)

Picul (Malay). A commercial weight varying in different countries and for different commodities. In China, Japan, and Sumatra it is 133⅓ pounds. In the Philippines it is usually 140 pounds (Webster). Also spelled Pickul.

Pie (Sp.). 1. Foot or base of a mountain. 2. *P. de amigo*, buttress or strut; *P. de gallo*, a diagonal brace; *P. derecho*, a vertical brace; a post. 3. (Sp.) A foot; a measure of length, or 27.85 cm. or 11 inches. 4. (Peru) Exposing a new face so as to increase the effect of a blast. It is done by firing the lower holes first and the upper ones afterwards. (Halse)

Piece (Scot.). Food taken by a workman to his work (Barrowman). A lunch. *See also* Bait.

Piece time (Scot.). Meal time. (Barrowman)

Piece wage. A wage paid to the worker at so much per piece, or unit of product. (Webster)

Piece work. Work done by the piece or job; work paid for at a rate based on the amount done, rather than on the time employed. (Webster)

Piedmont. Lying or formed at the base of mountains; as a piedmont glacier. A piedmont alluvial plain is formed at the foot of a mountain range by the merging of several alluvial fans. (Webster)

Piedmont glacier. A type of glacier formed at the base of one or more glaciers by the expansion of the ice over a lateral valley or a broad plain; an ice lake. Called also Malaspina glacier. The Malaspina Piedmont glacier in Alaska, the only one fully described, has an area of 1,500 square miles. (Standard)

Piedmontite. A variety of epidote containing manganese. (Dana)

Piedra (Sp.). A stone, rock, or mineral; *P. arenosa*, freestone; *P. de azufre*, sulphur rock; *P. berroqueña*, granite; *P. bruta* (Mex.), country rock; barren rock; *P. caliza*, limestone, *P. córnea* (Mex.), chert, flint; *P. de campana*, phonolite; *P. de candela*, flint stone; *P. de mano* (Mex.), a hand specimen; *P. de molino*, a millstone; *P. de mollejon*, sandstone; *P. dura*, any hard flint-like stone; *P. imán* (Sp.), loadstone; *P. inga*, pyrite; *P. mármol*, marble; *P. mineral*, ore; *P. negra* (Venez.), greenish-gray felstone; *P. pez*, pitch stone; *P. podrida*, rotten stone; *P. pomez*, pumice stone; *P. preciosa*, a gem or precious stone. (Halse)

Piel. An iron wedge for piercing stone. (Standard)

Piercer. 1. A blasting needle. (Ure) 2. In founding, a wire for venting a mold (Standard). *See* Picker, 7.

Piercing shot (Scot.). A shot in the roof, or brushing, designed to bring down an increasing thickness of stone. (Barrowman)

Pierelle (Fr.). A clay-covered irregular mass of stone, filling a ditch. (Standard)

Pierre-Perdu (Fr.) Blocks of stone, or concrete, heaped loosely in the water to make a foundation, as for a sea wall. (Webster)

Pier stone (Scot.). A hard variety of freestone. (Gresley)

Pietra (It.). Stone: used in phrases, as *pietra dura.* (Standard)

Pietra dura (It.). Inlaid work of hard stones set in marble. (Standard)

Pietra serena (It.). A gray sandstone quarried near Fiesole, Italy, and used for building in Florence and other Italian cities. (Standard)

Piezocrystallization. In petrography, crystallization under pressure caused by orogenic forces. (Webster)

Piezoelectricity. Electricity produced or developed by pressure, as in quartz. (Standard)

Pig. 1. An oblong mass of metal that has been run, while molten, into a mold excavated in sand; specifically, iron from the blast furnace run into molds excavated in sand (Century). An ingot or cast bar of metal.
2. Any of the molds or channels in the pig bed. 3. Collectively, pig iron, pig lead, etc. (Webster)
4. A 301-pound mass of lead. (Standard)

Pig back. To add pig iron to a molten charge too much decarburized in the acid open-hearth process. (Webster)

Pig bed. The sand bed in which are made the excavations into which iron is run in casting pigs (Standard). *See also* Pig. 2.

Pig boiling. Wet puddling. (Standard)

Pigeonhole. 1. A room driven directly into the coal seam from the edge of a strip pit. 2. Any small poorly equipped coal mine. (Steel)

Pig foot. 1. An iron clamp shaped like a pig's foot used to attach the jack to the feed chain of a continuous electric coal cutter. 2. A pipe jack with a pig foot at one end. (Steel)

Pig hole. A hole in a steel furnace, through which to put, in a crucible, an extra charge of pig iron. (Standard)

Pig iron. Crude cast-iron from the blast furnace. When the furnace is tapped the molten iron flows down a runner molded in sand, from which it enters the sows or lateral runners, flowing from these again into the pig beds, the separate parallel molds of which form the pigs. In each bed the ingots lie against the sow like suckling pigs, whence the two names. *Mine pig* is pig iron made from ores only; *cinder pig* from ores with admixture of some forge or mill cinder. (Raymond)

Pig lead. Commercial lead in large oblong masses, or pigs. (Standard)

Pigment. Any coloring material. Specifically, any dry earthy substance that, mixed with a liquid vehicle forms paint: of mineral origin, as ocher; vegetal, as dogwood; or animal, as cochineal. (Standard)

Pig metal. Metal in pigs, as iron from a smelting furnace. (Standard)

Pig sticker. A man delegated to the duty of punching or knocking pig iron out of chills or molds at a blast furnace pig-casting machine. (Willcox).

Pigsty (Aust.). A timber crib or chock used in timbering wide seams or lodes. (Halse)

Pigsty timbering. Hollow pillars built up of logs laid crosswise for supporting heavy weights. (C. and M. M. P.)

Pigtailer (Joplin, Mo.). One employed by the mining company to assist trammers in long-distance haulage, where tramming is done by men. An assistant trammer.

Pig tin. Tin cast, or for casting into pigs. (Webster)

Pike. 1. A pick or pickax. 2. The horn or back of an anvil. 3. A peaked mountain or hill top, or a mountain or hill with such a top; a peak. 4. A turnpike road. 5. A sharp-pointed staff. (Webster)

Pikeman (So. Staff.) One who uses a pick or pickax, as a miner; a pickman. (Webster)

Pike pole. A pole 12 to 20 feet long with a long spike in one end, used in directing floating logs (Webster). Also frequently used in raising structural timbers, as in raising the frame of a building.

Piking. *See* Cobbing, 1.

Pila (Mex.). 1. A stone basin used for storing amalgam from the *patio* process. *P. apuradora,* a tank to receive the residues from the washing troughs. 2. A large evaporating pan

used in salt works. 3. (Colom.) A pit or reservoir dug out or made by damming a creek and used in gravel washing. 4. *P. de mineral*, a pile of ore. (Halse)

Pilador (Colom.). A wooden instrument moved by the stamps to indicate that ore is short in the battery; a tell-tale. (Halse)

Pilandite. A porphyritic phase of hatherlite. (Kemp)

Pilar (Mex.). A pillar of rock or ore. (Dwight)

Pilar el molino (Colom.). Said of noise produced by stamps when ore is short in the mortar box. (Halse)

Pilarite. An aluminous variety of chrysocolla. (Standard)

Pilch. 1. (Corn.) A portion of the lode let to miners to work on tribute. (Davies)
2. A thick apron worn by peat diggers. (Standard)

Pile. 1. The fagot or bundle of flat pieces of iron prepared to be heated to welding-heat and then rolled. 2. To make up into piles or fagots. 3. Long thick laths, etc., answering in shafts, in loose or "quick" ground, the same purpose as spills in levels, piles being driven vertically. (Raymond)
4. A large stake or pointed timber driven in the earth, as to support foundations of buildings in wet or yielding ground or, where the ground is soft, to support a building, pier, or other superstructure or to form a cofferdam; also an iron post or pillar, or a cylinder of concrete, used in place of the pile. (Webster)
5. A fortune. A miner who has made money has made his pile.

Pile cap. In hydraulic engineering, a beam connecting the heads of piles. (Century)

Pile dam. A dam made by driving piles and filling the interstices with stones. The surfaces are usually protected with planking. (Century)

Pile driver. A machine for driving piles, usually a high frame with appliances for raising to a height a heavy mass of iron (the monkey), which falls on the pile. (Webster)

Pile hoop. An iron band put around the head of a timber pile to prevent splitting. (Century)

Pile shoe. An iron point fitted on a pile. (Century)

Pileta (Mex.). 1. Sump of a mine. 2. Basin, pot, or crucible of a smelting furnace. (Dwight)

Piling. *See* Pile, 3 and 4.

Pillar. 1. A solid block of coal, etc., varying in area from a few square yards to several acres. (Gresley)
2. A piece of ground or mass of ore left to support the roof or hanging wall in a mine. (Hanks)

Pillar-and-breast. A system of coal mining in which the working places are rectangular rooms usually five or ten times as long as they are broad, opened on the upper side of the gangway. The breasts usually from five to twelve yards wide, vary with the character of the roof. The rooms or breasts are separated by pillars of solid coal (broken by small cross headings driven for ventilation) from five to ten or twelve yards wide. The pillar is really a solid *wall* of coal separating the working places. When the object is to obtain all the coal that can be recovered as quickly as possible, the pillars are left thin; but where this plan is likely to induce a crush or squeeze that may seriously injure the mine, larger pillars are left and after the mine has been worked out, the pillars are 'robbed' by mining from them until the roof comes down and prevents further working. In the steeply inclined seams of the anthracite regions the pillar-and-breast system is employed by working the bed in 'lifts' (Chance). Also called Pillar-and-stall, Post-and-stall, Bord-and-pillar.

Pillar-and-room. *See* Room-and-Pillar.

Pillar-and-stall. A system of working coal and other minerals where the first stage of excavation is accomplished with the roof sustained by coal or ore (Gresley). *See* Pillar-and-Breast; Post-and-Stall.

Pillar-and-stope. *See* Square-set stoping.

Pillar coal. Coal secured in pillar-robbing.

Pillar-drive. A wide irregular drift or entry, in firm dry ground, in which the roof is supported by pillars of the natural earth, or by artificial pillars of stone, no timber being used. (Duryee)

Pillaring (Aust.). The process of extracting pillars (Power). Also called Robbing pillars; Pulling pillars.

Pillaring back (No. Staff.). Robbing pillars. *See* Drifting back. (Gresley)

Pillar man. A man who builds stone packs in mine workings. (Gresley)

Pillar roads. Working roads or inclines in pillars having a range of longwall faces on either side. (Gresley)

Pillar-robbing. 1. The systematic removal of the coal pillars between rooms or chambers so as to regulate the subsidence of the roof. Also called pillar drawing. 2. The removal of ore pillars in sublevel stoping, or slicing.

Pillar-robbing and hand-filling. *See* Sublevel stoping.

Pillar-working. Working coal in much the same manner as with the Pillar-and-Stall system. (Gresley)

Pillion (Corn.). Tin that remains in the slag after the first melting (Webster). It is recovered by repeated stamping, screening and washing.

Pilolite. A name given to certain minerals previously called Mountain cork and Mountain leather. (Chester)

Pilón (Sp.). 1. A stone trough. 2. A stamp or stamper. 3. Pestle of a mortar. 4. A large wooden mortar for grinding maize. (Halse)

Piloncillos (Mex.). A collection of cone-shaped rocks. (Lucas)

Pilotaxitic. Having holocrystalline structure in which the groundmass consists essentially of microliths of feldspar; said of certain rocks, as the porphyrites. (Standard)

Pilot burner. A small burner kept lighted to rekindle the principal burner when desired, as in a flash boiler (Webster). The light so maintained is called a Pilot-light or Pilot-flame.

Pilot method. The method of excavating a tunnel by driving a small tunnel ahead, and then enlarging its dimensions. (Webster)

Pilot tunnel. A small tunnel driven ahead of a main tunnel to determine its grade and direction. (Standard)

Pilot valve. A small hand-operated valve to admit liquid to operate a valve difficult to turn by hand. (Webster)

Pilquen (Peru). The tribute system. (Halse)

Pilz furnace. A circular or octagonal shaft furnace, maintaining or increasing its diameter toward the top, and having several tuyères; used in smelting lead ores. (Raymond)

Pimelite. A massive or earthy apple-green, hydrous silicate, containing magnesium, nickel, aluminum, and iron; named from its unctious quality. (Standard)

Pimple metal. A furnace product containing about 78 per cent of copper, formed in the smelting of copper ores. (Standard)

Pimple-stone. Pebblestone. (Webster)

Pimpley (Shrop.). Bind containing ironstone nodules. (Gresley)

Pin. 1. (Scot.) A tally for counting tubs or cars of ore or coal. Pins were formerly made by the miners, each miner's pins having a distinguishing device, initial, or number. (Barrowman). *See* Wedge rock.
2. (Eng.). A thin bed of ironstone in the coal measures. (Gresley)

Piña (Mex.). 1. Silver amalgam pressed in the form of a cone to be retorted under a capellina. *See* Pella. 2. The spongy or porous cone of silver left after evaporation of the mercury in the patio process of amalgamation. (Standard)
3. Cone for sample grinder. (Dwight)
4. (Chile) Bullion. (Halse)

Pinacoid. In all systems of crystallography, but the isometric, an open form of two parallel faces parallel to two of the axes. (La Forge) If the planes are parallel to both lateral axes, it is called a basal pinacoid; if to the longer lateral and the vertical axis, a *macropinacoid;* if to the shorter lateral and vertical axes, a *brachypinacoid;* if to the inclined axes and the vertical axis, a *clinopinacoid;* if to the ortho axis and the vertical axis, an *orthopinacoid.* (Webster)

Pinch. 1. A compression of the walls of a vein, or the roof and floor of a coal bed, which more or less completely displaces the ore or coal. Called also Pinch-out (Standard). The narrowing of a vein or deposit. A thin place in a mineral zone or where the zone itself almost or quite disappears and in other places widens out into extensive

bodies of ore. (Meydenbauer *v.* Stevens. 78 Fed. Rept., p. 791)
2. A kind of crowbar for breaking down coal. (Gresley)
3. A kind of crowbar with a short projection and a heel or fulcrum at the end; used to pry forward heavy objects; a pinch. (Standard)
4. To move (heavy machinery, etc.) short distances at a time by means of short holds with a crowbar or pinch bar.

Pinch bar. *See* Pinch. 3.

Pinchbeck metal. An alloy of copper, 80, and zinc, 20 per cent. (Ure)

Pinchcock. A clamp on a flexible tube to regulate the flow of a fluid through the tube. (Webster)

Pinched. Where a vein narrows, as if the walls had been squeezed in. When the walls meet, the vein is said to be pinched out (Roy. Com.). *See* Pinching out; *also* Pinch, 1.

Pincher. In glass-making, a nipping tool for shaping at one operation the outside and inside of the neck of a bottle. (Standard)

Pinching out. *See* Pinch, 1.

Pinching tongs. In glass-making, a pair of tongs upon the extremities of whose jaws are two dies that, when closed, form a mold for ornamental pendants, which are thus made from molten glass. The eye in the end of a pendant is made by a pin between the jaws of the tongs. (Standard)

Pinch-out. *See* Pinch, 1.

Pin cracks (Leic.). Small fissures in coal seams filled with water and gas. (Gresley)

Pinder concentrator. A revolving table on which are tapering spiral copper cleats on a linoleum cover. The tailings are washed over the riffles and off the edge while the concentrates are delivered at the end of the riffles. (Liddell)

Pindy (Corn.). A carbonaceous shale. (Power)

Pinguite. A soft oil-green variety of the hydrous silicate chloropal. (Century)

Pin-in. To fill the interstices of masonry with small pieces of stone. (Standard)

Pinion. A cog wheel with a small number of teeth designed to gear with a larger wheel or rack. (Webster)

Pinite. A general term used to include a large number of alteration products of iolite, spodumene, nephelite, scapolite, feldspar, and other minerals. A hydrous silicate of aluminum and potassium. (Dana)

Pink ash (Penn.). An anthracite which, when burned, leaves a pink ash.

Pinning. **1.** (No. Staff.) Bratticing in headings. (Gresley)
2. Small stones for filling in masonry interstices. (Webster)

Pino (Sp.). Pine. (Halse)

Pinta (Mex.). **1.** Indication (by color, weight, or structure, etc.) of the metallic value of an ore; *P. de metal*, indications of ore, spots of ore. (Dwight)
2. *P. azul*, at Pachuca, Mex., the lower zone of the silver veins in which the matrix is either a gray or bluish color, due to the presence of silver sulphides. **3.** (Venez.) A pay streak in gold placers. **4.** A color in a *batea*. (Halse)

Pintar (Sp.). To exhibit indications of ore. (Halse)

Pinzas (Sp.) A tool for extracting small objects that have fallen down a bore hole. Pincers. (Halse)

Piojo (Sp. Am.). The last washing trough. (Lucas)

Pioneer (Corn.). An able pickman; a tin miner. (Pryce)

Pioneer bench. The first bench in a quarry which is blasted out. It is usually at the top of the rock to be quarried. (Bowles)

Pipage. **1.** The carriage of oil, gas, water, etc., through pipes. **2.** The charge for such carriage. (Standard)

Pipe. **1.** An elongated body of mineral. A narrow portion of rich ore extending down the lode. **2.** Also the name given to the fossil trunks of trees found in coal beds. (Ihlseng)
3. One of the vertical cylindrical masses of volcanic agglomerate in which diamonds occur in South Africa. **4.** A tubular cavity, from a few inches to many feet in depth, occurring in calcareous rocks and often filled with gravel, sand, etc. **5.** The eruptive channel opening into the crater of a volcano. **6.** A tube for conveying water, oil, air, gas, etc. **7.** A cavity in a casting, especially in an ingot of steel, due

to unequal contraction on solidifying. 3. To throw water upon from a hydraulic pipe. (Webster)

Pipeclay. 1. Masses of fine clay, generally of lenticular form, found embedded in the hydraulic gravel banks. (Hanks)
2. A highly plastic and fairly pure clay of a grayish-white color, used in making pipes, in calico printing, and for cleaning soldiers' accoutrements, etc. (Webster)

Piped air (Eng.). Ventilation carried into the working places in pipes. (Gresley)

Pipe dog. A hand tool that is used to rotate a pipe whose end is accessible, consisting of a small short steel bar whose end is bent at right angles to the handle, and then quickly returned, leaving only enough space between the jaws to slip over the wall of pipe. (Nat. Tube Co.)

Pipe grab. A clutch for catching and raising a well pipe. (Standard)

Pipe grip. In steam and pipe fitting an implement consisting of an iron bar with a curved end and provided with a chain of square links to hook on to the jaws of the curved end. *See* Chain tongs. (Nat. Tube Co.)

Pipe jack. An iron pipe with a clamp or pig foot upon one end and a curved point upon the other. It is wedged between the floor and roof of a mine room to hold the feed chain of a continuous electric coal-mining machine. (Steel)

Pipe line. A line or conduit of pipe, sometimes many hundred miles long, through which petroleum is conveyed from an oil region to a market or to reservoirs for refining (Standard). A line of pipe with pumping machinery and apparatus for conveying a liquid, or gas. (U. S. Min. Stat., pp. 1068–1073)

Pipeman. 1. A laborer or workman engaged in laying or repairing pipe. 2. A workman in charge of a pipe, especially in hydraulic mining. (Webster)

Pipe metal. An alloy of tin and lead, sometimes with zinc, for making organ pipes. (Webster)

Pipe opal. 1. (White Cliffs, N. S. W.) Opalized belemnites. 2. (Queensland) Long narrow cavities filled with opal. (Power)

Pipe ore. Iron ore (limonite) in vertical pillars, sometimes of conical, sometimes of hour-glass, form, imbedded in clay. Probably formed by the union of stalacites and stalagmites in caverns. (Raymond)

Pipe oven. A hot-blast oven in which the air passes through pipes exposed to the heat of burning gas in brick conduits. (Century)

Pipe press. The name commonly applied to the machine used for molding sewer pipe. (Ries)

Pipe-prover. An apparatus for testing the tightness of a pipe line or system, usually by hydraulic pressure. (Standard)

Piper (Lanc.). A feeder of gas in a coal mine. (Gresley)

Pipe sampler. A device for sampling a pile of ore, consisting simply of a small iron pipe which is driven into the pile and which, when withdrawn, brings a core of ore with it. (Richards, p. 845)

Pipestone. A kind of argillaceous stone, carved by the Indians into tobacco pipes (Webster). *See* Catlinite.

Pipe tongs. A hand tool for gripping or rotating pipe. (Nat. Tube Co.)

Pipette. 1. A small piece of apparatus for transferring fluids as in chemical operations. 2. To convey or draw off with a pipette. (Webster)
3. In ceramics, a funnel-like can to hold slip, and to permit it to escape in a fine stream, as in slip-decoration. (Standard)

Pipe vein (Derb.). An ore body of elongated form (Raymond). *See* Pipe, 1.

Pipe wrench. A wrench whose jaws are usually serrated and arranged to grip with increasing pressure as the handle is pulled. There are many forms such as Alligator, Stillson, Trimo, etc. (Nat. Tube Co.)

Piping (Cal.). 1. In hydraulic mining, discharging water from the nozzles on the auriferous gravel. (Hanks)
2. The tubular depression caused by contraction during cooling, on the top of iron or steel ingots (Raymond). *See also* Pipe, 7.

Pipos (Sp.). Temporary blindness due to bad ventilation of sulphur mines. (Halse)

Pique (Sp. Am.). A prospecting shaft; a winze. (Lucas)

Piqueador (Sp.). The man who strikes the drill. (Halse)

Piquera (Sp.). The tap hole of a blast furnace. *See also* Piqueta. (Halse)

Piqueta (Mex.). Tap hole; *P. de grasa*, a slag tap; *P. de plomo*, a lead tap (Dwight). *See also* Piquera.

Piquete (Mex.). Surveyor's stake on the surface; small prospect work of any kind. (Dwight)

Piquetero (Sp.). A boy who carries picks to workmen in mines. (Halse)

Piracy. The diversion of the upper part of a stream by the headward growth of another stream: also called Beheading, Stream capture, and Stream robbery. (La Forge)

Pirargirita (Sp.). Pyrargyrite. (Dwight)

Pirita (Sp.). Pyrite. *See* Bronce. (Dwight)

Pirn (Scot.). A flat-rope winding drum. (Gresley)

Pirolusita (Sp.). Pyrolusite. (Dwight)

Pirómetro (Sp.). Pyrometer. (Dwight)

Pirquín (Chile). Tribute. (Lucas)

Pirquinero (Chile). A tributor. (Lucas)

Pisanite. An iron sulphate in which part of the iron is replaced by copper, $(FeCu)SO_4+7H_2O$. (U. S. Geol. Surv.)

Pisar (Sp.) 1. To dip. 2. To beat down stones or earth with a mallet. 3. (Colom.) *P. el molino*, said of stamps when they pulverize ore in the battery. (Halse)

Piso (Sp.). 1. A floor or level. 2. The bottom working of a mine. 3. The footwall of a vein or deposit. (Halse)

Pisolite. A limestone composed of globular concretions, about the size of a pea. (Webster)

Pisolitic. Consisting of rounded grains like peas or beans. (George)

Pisón. 1. (Sp.) A rammer for driving earth, stone, or piles. 2. (Colom.) A stamp. 3. (Chile) A wet-crushing mill. (Halse)

Pissasphalt; Pissasphaltum. A soft bitumen of the consistency of tar, black, and possessing a strong smell (Mitzakis). *See also* Maltha.

Pisselaeum. A variety of bitumen. (Mitzakis)

Pistazite. A synonym for Epidote, more current in Europe than America, and used in rock names for epidote. (Kemp)

Pistola (Mex.). Small drill hole. (Dwight)

Pistol pipe. In metal working, the tuyère of a hot-blast furnace. (Century)

Pit. 1. (Eng.) A colliery; a mine shaft; a shallow hole. (Gresley)
2. The underground portion of a colliery, including all workings. Used in many combinations, as *pit* car, *pit* clothes, etc. (Steel)
3. In hydraulic mining, the excavation in which piping is carried on. (Hanks)
4. A stack of wood, prepared for the manufacture of charcoal. (Raymond)
5. A large hole from which some mineral deposit is dug or quarried, or the mine itself, as a gravel pit, stone pit. 6. A hole in the ground in which to burn something, as a lime pit, charcoal pit. (Webster)
7. An excavation in the earthen floor of a foundry to receive molten metal. (Standard)

Pit bank. 1. (Scot.) The surface of the ground at the mouth of a pit, or shaft. (Barrowman)
2. (Eng.) The raised ground or platforms upon which the coal is sorted and screened at surface. (Gresley)

Pit barring (Scot.). Timbers supporting the sides of a shaft. (Gresley)

Pit boss. One who has charge of the surface work at the mine as well as that in the mine. A mine foreman. (Steel)

Pit bottom. 1. (Scot.) The bottom or lowest landing in a shaft. (Barrowman)
2. (Eng.) The entrance to a mine and the underground roads, in the immediate vicinity, whether at the bottom of the shaft or at any point in it beneath the surface at which the cages are loaded. Also Pit eye. (Century)

Pit-bottom stoop (Scot.). A large solid block or pillar left around and to support the mine shaft. (Gresley)

Pit-brow (Lanc.). The pit bank (Gresley). At or near the top of a shaft.

Pit-car oil. *See* Summer black oil.

Pitch. 1. The ground assigned to tributers. 2. The dip or inclination of a vein or bed; more precisely, in modern usage, the inclination of an ore body in the direction of its strike. (Webster)
3. *See* Pitch of fold.
4. In dredging, the distance between the center of any pin and that of the pin in the next adjacent bucket. (Weatherbe, p. 66) 5. One of the residues formed in the distillation of wood or coal tar. It is also obtained from petroleum. The term 'pitch' is sometimes employed indisciminately to mean bitumen or asphalt. (Mitzakis)
6. The amount of advance of a screw thread in a single turn, expressed in lineal distance along or parallel to the axis, or in turns per unit of length 7. The distance between tooth centers, measured on the pitch line, or the number of teeth per unit of diameter, as in a gear-wheel. (Standard)

Pitch-bag (Corn.). A bag covered with pitch, in which powder is inclosed for charging damp holes. (Raymond)

Pitchblende. *See* Uraninite.

Pitch coal. 1. A brittle lustrous bituminous coal or lignite. (Webster)
2. A kind of jet. (Standard)

Pitcher. 1. (No. of Eng.) A loader in the pit, and one who takes up and relays the rails at the working faces. (Gresley)
2. One who picks over dumps for pieces of ore. (Webster)

Pitcher brasses (Shrop.). Indurated schistose clay. (Gresley)

Pitcher molding. In ceramics, a method of molding by pouring thin slip into a mold, which is then emptied, leaving part of the mixture adhering. As it dries more is poured, to adhere and dry until the required thickness is obtained. (Standard)

Pitch-faced. In stone cutting, quarry-faced, but having the arris defined by a line beyond which the rock is cut away so as to give nearly true edges. (Webster)

Pitching. 1. The act of facing a bank with stone; also, the stone facing.
2. Rough paving of a street to a grade with coarse stone, or cobbles; a pavement so made. (Webster)

Pitching bar. A kind of pick used by miners in beginning a drill hole. (Webster)

Pitching chisel. In stone cutting, a steel chisel having the cutting face rectangular in outline. (Webster)

Pitching-stable. A Cornish paving granite. (Standard)

Pitch line. The line on which the pitch of teeth is measured; an ideal line, in a toothed gear or rack, bearing such a relation to a corresponding line in another gear with which the former works, that the two lines will have a common velocity as in rolling contact. (Webster)

Pitch of fold. The angle between the horizontal and an axial line passing through all the highest or lowest points of a given stratum of a syncline or anticline. (Lindgren, p. 112)

Pitch off. A quarryman's term for trimming an edge of a block of stone with a hammer and sett (Bowles). *See also* Pitch-faced.

Pitch ore. *See* Pitchy copper ore. Also a synonym for Pitchblende. (Chester)

Pitch mineral. Bitumen; asphalt. (Standard)

Pitch opal. An inferior quality of common opal. (Standard)

Pitch peat. A variety of peat resembling asphalt. (Standard)

Pitchstone. A variety of volcanic glass similar to obsidian but having a more resinous luster. (La Forge) It was formerly specially used for Pre-Tertiary glasses, *i. e.*, the glasses of quartz-porphyries and porphyries, but time distinctions are obsolete. Pitchstones have a marked resinous luster as the name implies. (Kemp)

Pitchy copper ore. An early name (*Pecherz*) for a dark-colored oxide of copper which looks like pitch. (Chester)

Pitchy iron ore. An old synonym for Pitticite. (Chester)

Pitchwork. In mining, work done on condition that the miner shall receive a certain proportion of the output (Standard). *See* Pitch, 1.

Pitch-workings. Mine workings in steeply inclined seams.

Pit coal. Coal obtained by mining, as distinguished from charcoal. (Power)

Pit committee (Ark.). A committee of mine workers elected by the local union to confer with the pit boss or superintendent in case of disputes between them and any miner. (Steel)

Pit crater. A volcanic crater at the bottom of a pit. (Standard)

Pit eye (Eng.). The bottom of the shaft of a coal mine; also the junction of a shaft and a level. (Raymond)

Pit-eye pillar. A barrier of coal left around a shaft to protect it from caving. (Raymond)

Pit frame. 1. The framework carrying the pit-pulley (Raymond). *See also* Head frame.
2. The framework in a coal-mine shaft. (Standard)

Pit gate (York.). Any place in the immediate vicinity of a colliery at which miners hold meetings of their own in reference to wages, etc. (Gresley)

Pit guide. An iron column that guides the cage in a mine shaft. (Standard)

Pith (Eng.). The soft part of the lode. (Hunt)

Pit head (Scot.). The landing at the top of a shaft. (Barrowman)

Pit head-frame (Scot.). *See* Head frame; Pit frame, 1.

Pit-head man (Scot.). The man in charge of the unloading of the cages and weighing of the mineral at a pit head. (Barrowman)

Pit heap (Eng.). *See* Heapstead.

Pit hill (Eng.). *See* Pit bank, 2.

Pit kiln. 1. A kiln sunk in the ground, as on a hillside. 2. An oven in which coke is made. (Standard)

Pit lamp; Pit light. An open lamp worn on a miner's cap as distinguished from a *safety lamp.* (Steel)

Pit-man. 1. (Corn.) A man employed to examine the lifts of pumps and the drainage. 2. (Newc.) A working miner. (Raymond)

Pit mouth (Scot.). The opening of a shaft at the surface of the ground. (Barrowman)

Pitometer. In hydraulics, an instrument for autographically recording variations of flowing water. It consists essentially of two Pitot tubes, one pointed upstream and one downstream. (Webster)

Pitot's gauge. *See* Pitot's tube.

Pitot's tube. A tube bent at right angles, which inserted in a flowing stream receives the force of the current and measures its velocity by the rise of water in the vertical branch. (Standard)

Pit prop. A piece of timber used as a temporary support for the mine roof. (C. and M. M. P.)

Pit pumps (Scot.). Pumps used in a mine shaft. (Barrowman)

Pit rails (Eng.). Iron or steel rails upon which trams or tubs run in a mine. (Gresley)

Pit room. The extent of the opening in a mine; pit space. (Steel)

Pit rope (Eng.). Winding rope; a hoisting rope.

Pits (So. Wales). Long open-air fires for converting coal into coke for blast-furnace purposes. (Gresley)

Pit shaft (Eng.). Same as Shaft.

Pitter (Eng.). A horse or pony suitable for underground work. (Gresley)

Pitticite. Hydrous sulpharsenate of iron, found in yellowish, reddish, and brownish reniform masses (Chester). Also spelled Pittizite.

Pitting. 1. The act of digging or sinking a pit, as for sampling alluvial deposits. 2. Corrosion of metal by which small cavities are produced. 3. (Scot.). Mining on the outcrop by means of shallow pits.

Pit tip (Eng.). A bank or heap upon which mine waste is tipped or dumped. (Gresley)

Pit top. 1. (Eng.) The mouth of a mine shaft. Gresley)
2. (Aust.) The structure about the mouth of a shaft. (Power)

Pittsburgh flux. A condensed or blown oil from Ohio petroleum; it contains 97.6 per cent of bitumen soluble in carbon disulphide, 66.1 per cent of bitumen soluble in 88° Bé. naphtha, 55.5 per cent of pure bitumen as saturated hydrocarbons, 3.7 per cent of paraffin scale, 4.75 per cent of sulphur, and 13.7 per cent of ash-free residual coke. (Bacon)

Pit water (Aust.). The moisture contained in freshly mined coal, which is lost by exposure to ordinary atmospheric conditions. (Power)

Pit wood (Eng.). The timber used for propping the roof. (Gresley)

Pitwork (Corn.). The pumps and other apparatus of the engine shaft. (Raymond) *See also* Pit top.

Pit wright (Scot.). An engineer who attends to pit pumps, etc. (Barrowman)

Pivotal fault. *See* Fault.

Pivote (Mex.). The chimney of a small copper-smelting furnace. (Halse)

Pizarra (Sp.). Slate; *P. arcillosa*, a clay state; *P. carbonífera*, coal, slate or shale. (Halse)

Pizarral (Sp.). Slate quarry. (Lucas)

Pizarreña (Sp.). Slaty structure. (Dwight)

Placas (Mex.). Jaw plates for a crusher; *P. de cobre*, amalgamated copper plate; *P. de unión*, fish plate. (Halse)

Place. 1. *See* In place; *Also* In situ. 2. The part of a mine in which a miner works by contract is known as his "place" or "working place" (Steel). A point at which the cutting of coal, is being carried on. 3. (Eng.) A kind of cabin in which tools are kept in the mine, and in which a deputy eats his lunch. (Gresley)

Placer (Sp.). A place where gold is obtained by washing; an alluvial or glacial deposit, as of sand or gravel, containing particles of gold or other valuable mineral. In the United States mining law, mineral deposits, not veins in place, are treated as *placers*, so far as locating, holding, and patenting are concerned. Various minerals besides metallic ores have been held to fall under this provision, but not coal, oil, or salt. (Webster)

Placer claim. A mining claim located upon gravel or ground whose mineral contents are extracted by the use of water, by sluicing, hydraulicking, etc. (Duryee). The unit claim is 1,320 feet square and contains 10 acres. *See* Placer.

Ground with defined boundaries which contains mineral in the earth, sand, or gravel; ground that includes valuable deposits not fixed in the rock. (United States *v.* Iron Silver Mining Co., 128 United States, p. 679.) (U. S. Min. Stat., p. 507–517.) *See* Claim; *also* Lode claim.

Placer deposit. A mass of gravel, sand, or similar material resulting from the crumbling and erosion of solid rocks and containing particles or nuggets of gold, platinum, tin, or other valuable minerals, that have been derived from rocks or veins. (U. S. Geol. Surv., Bull. 613, p. 184)

Placer mining. That form of mining in which the surficial detritus is washed for gold or other valuable minerals. When water under pressure is employed to break down the gravel, the term *hydraulic mining* is generally employed. There are deposits of detrital material containing gold which lie too deep to be profitably extracted by surface mining, and which must be worked by drifting beneath the overlying barren material. To the operations necessary to extract such auriferous material the term *drift mining* is applied. (U. S. Geol. Surv., Bull. 259 p. 32). *See also* Dredge, 1.

Placing work (Eng.). The distribution of work among trammers (Bainbridge)

Plagihedral. In crystallography, having an oblique spiral arrangement of faces. (Webster)

Plagioclase. The triclinic feldspars are called collectively plagioclase. The principal triclinic feldspars are albite, anorthite, labradorite, and oligoclase. As constituents of rocks they occur generally in small crystalline grains, and without a microscopic examination it is difficult to distinguish them in this form from one another (Roy. Com.). A convenient designation for the feldspars consisting chiefly of silicates of sodium, calcium, and aluminum as opposed to those consisting chiefly of potassium and aluminum silicates. The name has reference to the oblique character of the cleavage of these feldspars as compared with orthoclase, the common potassium feldspar. (Ransome)

Plagioclastic. Having the cleavage of plagioclase; breaking obliquely. (Standard)

Plagionite. A sulphide of lead and antimony, of a blackish lead-gray color and metallic luster. (Webster)

Plain. An extent of level, or nearly level, land; a region not noticeably diversified with mountains, hills, or valleys. (Century)

Plain shale (Scot.). Oil shale not foliated. (Barrowman)

Plan. 1. The system on which a colliery is worked, as Longwall, Pillar-and-breast, etc. 2. A map or plan showing outside improvements and underground workings. (C. and M. M. P.)

Plan (Sp.). 1. The lowest working in a mine. 2. *P. del tiro*, the sump of a shaft. 3. An inclined plane. 4. A survey plan. 5. (Colom.) An artificial surface, slightly inclined, constructed on bedrock or sand for the deposition of alluvium. 6. (Colom.) A die or shoe of a stamp. 7. *Trabajar de plan*, to sink vertically or on an incline (Halse). *See also* Plano.

Planation. 1. The widening of valleys through lateral corrasion by streams after they reach grade and begin to swing, and the concurrent formation of flood plains. Also, by the extension of the above processes, the reduction of divides and the merging of valley plains to form a peneplain; peneplanation. 2. The grading of an area or district by any erosive process, either subaerial or marine. (La Forge)

Planch. A slab of fire brick in an enameling-furnace, to support the work while baking. (Standard)

Plancha (Mex.). 1. Pig, ingot, bar, plate, thick sheet, or mass of any metal. 2. Bucking board. 3. Mud-sill. 4. Steel sheet. 5. Turnplate. 6. Amalgamating plate. 7. A charge of roasted ore weighing about 70 pounds. (Dwight)

Planchera (Mex.). Ingot mold of sand, earth, or iron. (Dwight)

Plancheta (Sp.). A plane table used in surveying. (Halse)

Planchuelas (Mex.). Fishplates. (Dwight)

Plane. 1. Usually applied to self-acting inclines, but any slope or incline on which coal is raised or lowered may be called a plane. (Chance)
2. A flat or level surface. (Webster)
3. (Scot.) A working room driven at right angles to or facing the joint planes. (Barrowman)
4. In brickmaking, a trowel-like tool for striking off clay that projects above the mold. (Standard)

Planear (Mex.). To extract gold from fissures, cracks, etc., in soft uneven bedrock. (Halse)

Plane course, or on plane (Scot.). In the direction facing the joint planes. (Barrowman)

Plane of symmetry. A plane to which a crystal is symmetrical; that is, for each face or angle of the crystal there is a similar face or angle in such position on the opposite side of the plane that the line joining the two faces or angles is perpendicular to the plane. (La Forge)

Plane surveying. Surveying in which the curvature of the earth is disregarded, as in ordinary field and topographic surveying. (Webster)

Plane table. 1. A simple surveying instrument by means of which one can plot the lines of a survey directly from the observations. It consists of a drawing board on a tripod, with a ruler, the ruler being pointed at the object observed. (Webster)
2. An inclined ore-dressing table. (Standard)

Planetesimal. One of numerous small solid planetary bodies which, according to the planetesimal hypothesis, had individual orbits about the sun and of which the planets were formed by aggregation. (La Forge)

Planetesimal hypothesis. The hypothesis that the earth, and the other planets, were formed by the collision and coalescence of planetesimals and have never been wholly molten. (La Forge)

Planilla (Mex.). 1. Inclined floor upon which tailings are washed. 2. Stationary buddle. 3. Sorting table. 4. Wooden skimmer for molten metal. (Dwight)
5. Packing or goaf. (Halse)

Planillero (Mex.). A workman on the *planilla*, always paid according to amount of concentrates produced. (Dwight)

Planimeter. An instrument for measuring the area of any plane figure by passing a tracer around the bounding plane. (Webster)

Planish. To condense, smooth, and toughen, as metal, by hammer blows. (Standard)

Planisher. A device by which to flatten thin sections cut for microscopic examination. (Standard)

Plank (So. Wales). Strata drained of gas. (Gresley)

Plank dam (Eng.). A water-tight stopping fixed in a heading, and constructed of plank placed across the passage. (Gresley)

Plank hook. In mining, a form of cant hook used for shifting planks. (Standard)

Plank-timbering. The lining of a shaft with rectangular plank frames. (Raymond)

Plank-tubbing. The lining of a shaft with planks, spiked on the inside of curbs. (Raymond)

Plano (Sp.). 1. A plan. 2. The floor of a mine working. 3. A plane; *P. inclinado*, an inclined plane; *P. de crucero*, in geology, a plane of cleavage; *P. de estratificación*, a plane of stratification; *P. de fractura*, plane of fracture; *P. de junta*, a joint plane. 4. *P. de resbalamiento*, a slickensides. 5. *P. de nivel*, a datum line (Halse). *See also* Plan.

Planophyre. A rock in which the phenocrysts are arranged in layers. (Iddings, Igneous Rocks, p. 224)

Plant. 1. The shaft or slope, tunnels, engine houses, railways, machinery, workshops, etc., of a colliery or other mine. (Steel)
2. To place gold or any valuable ore in the ground, in a mine, or the like to give a false impression of the richness of the property. To "salt," as to plant gold with a shotgun. (Webster) *See* Salting a mine.

Planté battery. A type of storage battery with both electrodes of lead and the electrolyte of sulphuric acid. (Webster)

Plasma. A variety of chalcedonic quartz. (Dana)

Plastering. Same as Mudcapping.

Plaster mill. 1. A machine consisting of a roller or set of rollers for grinding lime or gypsum to powder. 2. A mortar mill. (Century)

Plaster of Paris. A plaster made from gypsum by grinding and calcining it; so called from its manufacture near Paris in France. In Canada this term has been adopted for gypsum in any form (Roy. Com.). It forms with water a paste which soon sets, and is used for casts, moldings, etc.

Plaster pit (Derb.). A gypsum mine. (Gresley)

Plaster stone. Gypsum.

Plastic. Capable of being molded or modeled, as clay or plaster. (Webster)

Plasticity. The property possessed by clay of forming a plastic mass when mixed with water. (Ries)

Plat. 1. A floor for loading, unloading, etc., of ore, etc., at the junction of a shaft with a level (Webster). A platform.
2. A swinging or revolving door used intermittently to connect two trackways. (Ihlseng)
3. The map of a survey in horizontal projection, as of a mine, townsite, etc.

Plata (Sp.). Silver; *P. agria*, silver glance; *P. blanca*, native silver; *P. ceniza*, chloride of silver; *P. córnea amarilla*, iodyrite; *P. córnea blanca*, cerargyrite; *P. esponja*, silver sponge; *P. maciza*, (Peru), native silver, generally in small sheets; *P. mixta*, gold and silver alloy; *P. negra*, argentite; *P. niña*, silver bullion obtained by retorting amalgam, and not yet melted; *P. pasta*, silver bullion; spongy silver bars after retorting; *P. verde*, bromyrite; embolite. (Dwight)
P. de ley, standard silver. (Min. Jour.)

Plataforma (Sp.). 1. A platform, a scaffold, 2. A turn table. 3. A multiple-deck skip or "giraffe." (Halse)

Plate. 1. (Scot.) A flat cast-iron or malleable-iron sheet laid at the shaft bottom or at any landing to enable the cars to be easily turned and moved about. A cast-iron plate with a circular ridge on which cars are turned at junction of roads. (Barrowman)
2. (Eng.) Black shale; a slaty rock. (Hunt)
3. A sheet of rolled iron or steel a quarter of an inch or more thick.
4. To cover over with gold, silver, or other metal, either mechanically or chemically. (Webster)
5. Plate glass. 6. A horizontal timber laid on a wall to receive a framework. (Standard)
7. A sheet of copper coated with mercury for collecting gold. *See also* Amalgamation, 2.

Plate amalgamation. Amalgamation in which the crushed ore, suspended in water, is brought in contact with surfaces coated with a layer of mercury. (Clennell, p. 198)

Plate-and-frame filter press. A filter press consisting of plates with a gridiron surface alternating with hollow frames, all of which are held by means of lugs, on the press framework. The corners of both frames and plates are cored to make continuous passages for pulp and solution. The filter cloth is placed over the plates. The pulp passageway connects with the large square opening in the frame; the solution passageways connect with the gridiron surface of the plate. The Dehne and the Merrill are well-known types. (Liddell)

Plateau. An upland, tableland, or elevated plain having a fairly smooth surface and bounded, on at least one side, by an escarpment separating it from lower country. **2.** A district or region of considerable extent and somewhat diverse surface, not dominantly mountainous but commonly including some mountains, which lies in general distinctly higher than the surrounding or adjacent country; an extensive upland region. **3.** A formerly smooth upland or elevated plain now so much dissected that only traces of the former surface remain on flat-topped hills and ridges of nearly uniform altitude: more properly called a Dissected plateau. (La Forge)

Plate machine. An improved form of potters' wheel for forming porcelain plates for table use. (Standard)

Plate mark. A special mark put on articles made of precious metal to show the place of manufacture, fineness of the metal, etc. (Standard)

Plate metal. Refined iron run in molds and broken up for remelting or for use in a mix. (Webster)

Plate nail (Eng.). A nail or spike to fasten tram plates and rails to the sleepers. (G. C. Greenwell)

Plater. One who plates articles with a coating of precious or lustrous metals: usually in composition. as, a silver-plater. (Standard)

Platero (Sp.). A silversmith. (Dwight)

Plate oven. A double oven in one part of which the split cylinders of sheet or cylinder glass are heated before being flattened, the sheets then being placed in the other chamber to be annealed. (Webster)

Plate rail (Scot.). A flat cast-iron rail with a flange on one side. (Barrowman)

Plate roll. A smooth roll for making sheet iron or plate iron, as distinguished from one having grooves for rolling rails, beams, etc. (Standard)

Plate shale. A hard argillaceous shale. (Raymond)

Plate tongs. Tongs for grasping and handling iron or steel plates. (Standard)

Platform. **1.** A wooden floor on the side of gangway at the bottom of an inclined seam, to which the coal runs by gravity, and from which it is shoveled into mine cars. **2.** A scaffold. **3.** A bench in a glass-furnace for receiving pots. (Standard)

Platillo (Sp.). **1.** Scale pan. **2.** A small cog wheel. **3.** The small disk on a chain pump. **4.** (Mex.) A red earthen plate for testing ore or slime. (Halse)

Platina. **1.** Same as Platinum. **2.** Twisted silver wire. (Standard)

Platina mohr. Same as Platinum black, which *see*. (Standard)

Plating. Art, or process, of covering anything with plates, or with a coating of metal. (Webster)

Plating hammer. A trip hammer for working on heavy metal plates for armored vessels. (Standard)

Platinic. Of, pertaining to, or containing platinum, especially in its higher valence; as, *platinic* chloride. *Compare* Platinous. (Standard)

Platiniferous. Containing or yielding platinum. (Standard)

Platiniridium. An alloy of iridium with platinum and other metals of that group, found native. (Standard)

Platinize; Platinate. To coat or combine with platinum, especially by electroplating. (Standard)

Platinocyanide. A cyanide of platinum and some other element or radical. (Standard)

Platinoid. **1.** Resembling platinum. **2.** An alloy of German silver and 1 or 2 per cent of tungsten, used in the manufacture of resistance coils and other electrical appliances. **3.** A platinum metal. (Standard)

Platinous. Of, pertaining to, or containing platinum, especially in its lower valence (Standard). *Compare* Platinic.

Platinum. A heavy, almost silver-white metallic element, ductile and malleable, but very infusible and resistant to most chemical reagents. Melting point about 1,710° C. Symbol, Pt; atomic weight, 195.2; specific gravity, 21.4 (Webster). Practically all platinum is found in the metallic state, though small quantities are obtained from sperrylite (*which see*) and in the electrolytic refining of copper. (U. S. Geol. Surv.)

Platinum black. A soft, dull-black powder of metallic platinum, obtained by reduction and precipitation from its solutions. (Webster)

Platinum luster. A silvery luster given by a platinum glaze, more commonly known as Silver luster. (Standard)

Platinum metals. The group of metallic elements which in their chemical and physical properties resemble platinum. They are rhodium, ruthenium, and palladium whose specific gravities are about 12, and osmium, irridium and platinum whose specific gravities are over 21. (Webster)

Platinum sponge Metallic platinum in gray, porous, spongy form, obtained by reducing the double chloride of platinum and ammonium. It occludes oxygen, hydrogen and other gases, to a high degree and is employed as an agent in oxidizing. (Webster)

Platinum yellow. A pigment consisting of an alkaline chloroplatinate. (Webster)

Platón (Sp.). A small pan used for ore washing. (Halse)

Platt (Corn.). An enlargment of a level near a shaft, where ore may await hoisting, wagons pass each other, etc. (Raymond) Same as Plat, 1.

Platten. In glass-making, to flatten out; make into sheets or plates; specifically, to make (a blown cylinder) into a sheet by cutting lengthwise and softening so that it opens out. (Standard)

Platting. Brick laid flatwise on top of a kiln to keep in the heat. (Ries)

Plattnerite. Lead dioxide, PbO_2. Rarely in prismatic crystals, usually massive. Luster, submetallic. Color, iron-black. (Dana)

Plattner's process. A process for extracting gold in which a charge of gold-bearing pulp is placed in a revolving iron drum lined with lead, and a stream of chlorine gas is conducted through the pulp, producing chloride of gold, which is soluble in water (Goesel). *See* Chlorination process.

Play. 1. (No. of Eng.) To work a steel mill. *See* Steel mill. 2. Idle, said of a mine not at work. *See* Play day (Gresley)

Playa (Sp.). 1. A shore, strand, beach, or bank of a river. Generally sandy, and sometimes auriferous. (Halse)
2. The shallow central basin of a desert plain, in which water gathers after a rain and is evaporated. (U. S. Geol. Surv., Bull. 613, p. 184)

Play day (Eng.). A day on which, on account of accident, or other causes, mines are not worked (Gresley). *See* Play, 2.

Player (Eng.). A man who formerly worked a steel mill (Gresley). *See* Steel mill.

Playero (Peru). One employed in gold washing. (Halse)

Play-in (Leic.). To commence holing or undercutting a face of coal at the side of a heading. (Gresley)

Plaza (Sp.). 1. Room or space. 2. The bottom of a shaft furnace; the floor or bed of a reverberatory furnace. (Halse)

Plaza miner (Mex.). Any one who spends much of his time at a plaza, hotel lobby, etc., talking of prospects, mines, and mining operations.

Plazo (Sp.). The term of a bond or refusal of a mining property (Halse). An option.

Plegar (Sp.). To fold, as of geological strata. (Halse)

Pleiocene. *See* Pliocene.

Pleistocene. The earlier of the two epochs comprised in the Quarternary period, in the classification generally used. Also called Glacial epoch and formerly called Ice age, Post-Pliocene, and Post-Tertiary. Also the series of sediments deposited during that epoch, including both glacial deposits and ordinary sediments. Some geologists formerly used Pleistocene as synonymous with Quarternary and included in it all post-Tertiary time and deposits. (La Forge)

Pleito (Sp.). A lawsuit. (Min. Jour.)

Pleochroic. Exhibiting several different colors or tints when looked through in different directions. (Butler)

Plenum. A system of ventilation in which air is forced into an inclosed space, as a room or a caisson so that the outward pressure of air in the space is slightly greater than the inward pressure from the outside, and leakage is outward instead of inward (Webster). A mode of ventilating a mine or a heading by forcing fresh air into it. (Gresley)

Pleochroism. The property of colored double-refracting minerals whereby light penetrating in different directions shows different colors. (Power)

Pleomorphism. The property of crystallizing under two or more distinct fundamental forms. (Webster)

Pleonaste. Same as Ceylonite.

Plesiomorphism. The property of certain substances of crystallizing in similar forms while unlike in chemical composition. Called also Isogonism. (Standard)

Plicated. Folded together, as in highly inclined and contorted strata. (Roy. Com.)

Pliegue (Sp.). A fold or slip. (Halse)

Plies (Scot.). Successive thin layers of coal or rock. (Gresley) *See also* Ply.

Pliocene. The latest of the epochs comprised in the Tertiary period, in the classification generally used. Also the series of strata deposited during that epoch. (La Forge)

Plodding (Scot.). Uncertain; irregular, *i. e.*, a plodding band or seam of ironstone. (Barrowman)

Plomada (Mex.). Plumb line, or plumb bob. (Dwight)

Plomero (Mex.). 1. A lead tapper; a furnace man. 2. Plumber. (Dwight)

Plomillos (Mex.). 1. Shots of lead found in slag. (Dwight)
2. At San Luis Potosi, Mex., tin ore in which hematite predominates, or is present in equal proportions. (Halse)

Plomo (Sp.). 1. Lead; *P. afinado*, refined lead; *P. agrio*, slag lead, hard lead; *P. de obra*, argentiferous lead, base bullion; *P. pobre*, lead poor in silver. 2. (Mex.) Lead ore, generally galena. 3. *P. ronco* (Peru), argentite. (Halse)

Plot. 1. A surveyor's or engineer's map of a piece of ground; a chart, plan, or geographical representation. 2. To locate on a map or chart, as a point, curve, diagram, or plan; represent graphically; make a map or chart of (Standard). *See* Plat. 3. (Corn.) "To cut a plot" is to make room, or square out a piece of ground by the side of the lode or shaft, for holding the broken ore or waste for other convenient purposes. (Pryce)

Plotting scale. A scale used for setting off the lengths of lines in surveying. (Century)

Plow steel. A high-tensile steel first used in rope for plowing fields. Now widely used in the manufacture of hoisting ropes.

Pluck. To tear away projecting pieces of rock; said of the action of glaciers on contiguous rock. (Standard)

Plucking. The disruption of blocks of rock by a glacier. (Standard)

Plucky. A term applied to stones that, under the chisel, break away in irregular conchoidal chips, thus making it difficult to secure a smooth face. (Gillette, p. 6)

Plug. 1. A mass of igneous rock formed in the vent of a volcano. Dome, spine, or aiguille. (Daly, p. 130)
2. In surveying, a reference peg driven flush with the ground. (Webster)
3. A hammer closely resembling the bully. (Raymond)
4. *See* Plug-and-feather.

Plug-and-feather. The plug is a wedge and the feathers are two short pieces of half-round iron whose curved sides fit the sides of a drill hole while their flat sides receive the plug. By driving the plugs in a series of holes, a stone may be broken. (Gillette, p. 541)

Plug box (Eng.). A wooden water-pipe used in coffering. (Gresley)

Plug drill. A stone cutter's percussion drill. (Webster)

Plugged crib (York). A walling crib carried by iron plugs (two to each segment) fixed in the wall rock. (Gresley)

Plugging. 1. The stopping of the flow of water into a shaft by plugs of clay. (C. and M. M. P.)
2. (Eng.). Supporting a crib upon iron bars fixed in the wall of a shaft. (Gresley)
3. (Scot.). Blasting by means of plug shots. (Barrowman)

Plug hole. Same as Block hole. (Du Pont)

Plugman (Newc.). The man in charge of the pumping engine. (Min. Jour.)

Plug shot (Scot.). A small charge exploded in a hole to break up a stone of moderate size. (Barrowman)

Plum. An old form of plumb.

Plumb. 1. Vertical. 2. A plumb bob; a plummet. (Webster)
3. To carry a survey into a mine through a shaft by means of heavily weighted fine wires hung vertically in the shaft. The line of sight passing through the wires at the surface is thus transferred to the mine workings. An important piece of work in mine shafts, and in transferring courses or bearings from one level to another.

Plumbagina (Sp.). Graphite. (Halse)

Plumbing; Plumming. *See* Plumb, 3.

Plumbaginous. Containing plumbago, as plumbaginous schists; some crystalline limestones are also plumbaginous. (Roy. Com.)

Plumbago. The mineral graphite chiefly used in the manufacture of pencils, etc.; more commonly known as black lead, and very often wrongly thought to be lead by its resemblance to it (Skinner). Also used as a lubricant.

Plumbean. Consisting of or resembling lead. (Standard)

Plumbeous ware. In ceramics, earthenware with a lead glaze. (Standard)

Plumbic. Of, pertaining to, or containing lead, especially in its higher valence; as *plumbic* chloride. (Standard)

Plumbic ocher. Same as Massicot. (Standard)

Plumbiferous. Producing, or containing lead. (Webster)

Plumbism. Lead poisoning. (Standard)

Plumb line. A line or cord having at one end a weight, usually conoidal and of brass or lead, used to determine verticality; a plummet; a sounding line. (Webster) Used in mine-shaft plumbing. *See* Plumb, 3.

Plumbocalcite. A variety of calcite containing a small amount of lead carbonate. (Century)

Plumbogummite. A hydrous phosphate of lead and aluminum. (Century)

Plumbojarosite. A hydrous sulphate of lead and iron, $PbFe_6(OH)_{12}(SO_4)_6$ (U. S. Geol. Surv.)

Plumbous. Of, pertaining to, or containing lead, especially in its lower valence, as *plumbous* chloride. (Standard)

Plum-bulking (Scot.). The full dip of the coal seam. (Gresley)

Plumbum (L.). Lead; so called in pharmacy and old chemistry. (Standard)

Plum-hatching (Scot.). The full rise of a coal bed. (Gresley)

Plummet. *See* Plumb line.

Plumos antimony. An early name for jamesonite, which is also called Feather ore. (Chester)

Plumose. Having a feathery appearance (Thompson)

Plumose mica. A variety of muscovite mica. (Power)

Plumosite. A synonym for Jamesonite. (Chester)

Plump (Corn.). A corruption of the word pump. (Pryce)

Plump hole (Scot.). A hole at the surface caused by the extraction of mineral from underneath. (Barrowman)

Plum-pitch (Brist.). The full rise or full dip of the strata. (Gresley)

Plum-pudding stone. Pudding stone; a conglomerate. (Webster)

Plunge. 1. In surveying, to set the horizontal cross wire of a theodolite in the direction of a grade. 2. To turn over the telescope of a transit on its horizontal transverse axis. (Webster)
3. Called pitch or rake by many authors. Applied to ore bodies, is the vertical angle between a horizontal plane and the line of maximum elongation of the body. (Lindgren, p. 142)

Plunge a grade. To establish a grade between two points of known level by sighting the target, set up at either point, through a theodolite fixed at the other point, clamping and setting the instrument, and then bringing the target into the fixed line of sight at any desired intermediate point on the grade. (Webster)

Plunge pole; Plunger pole (Eng.). The piston- or pump-rod of a pumping-engine; a plunger. (Standard)

Plunger. 1. The piston of a force-pump. (Raymond)
2. A tank in which the clay and other ingredients are worked with water to the proper consistency. 3. A reckless gambler or speculator. (Webster)
4. In blasting, a rod designed for thrusting into a drill hole and ascertaining the position of the cartridge. (Standard)

Plunger bucket. A piston, without a valve, in a pump. (Webster)

Plunger case. The pump barrel, or cylinder, in which a solid piston or plunger works (Gresley). Also called Pole case.

Plunger lift (Scot.). A pump and column of pipes attached, raising water by means of a ram or piston. (Barrowman)

Plunge rod. A level rod used in surveying. (Webster)

Plunger pump. A pump having a solid reciprocating piston instead of one with a valve, usually one in which such solid piston is of considerable length as compared with its diameter. (Standard)

Plush copper; Plush copper ore. A Cornish name for chalcotrichite, probably alluding to its appearance. A fibrous red oxide copper mineral. (Dana)

Plus sight. *See* Back sight.

Plutonic. Of igneous origin. A general name for those rocks that have crystallized in the depths of the earth, and have therefore assumed, as a rule, the granitoid texture. (Kemp)

Pluvial. In geology, due to the action of rain. (Webster)

Ply (So. Staff.). A thin bed or band of shale, etc., lying immediately over a coal seam (Gresley). *See also* Mining ply.

Pneumatic drill. A drill of either the reciprocating or hammer type operated by compressed air.

Pneumatic hoist. A device for hoisting, operated by compressed air. (Standard)

Pneumatic jig. A jigging machine in which an air blast performs the work of separation of minerals. (Standard)

Pneumatics. The branch of physics that treats of the mechanical properties of gases, such as their pressure, elasticity, density, and also of pneumatic mechanism. (Standard)

Pneumatogenic. In geology, derived from or modified by substances in a gaseous condition; said of ores and other mineral deposits; contrasted with Hydatogenic. (Standard)

Pneumatolysis. The alteration of rocks and the formation of minerals during or as a result of the emanation of gases and vapors from solidifying igneous rocks. (La Forge) The chief gas concerned is water, under such conditions both of high temperature and high pressure that it is a true gas. (Shamel, p. 136)

Pneumatolytic. Characteristic of, pertaining to, or formed during pneumatolysis. (La Forge) A general name applied to those minerals that have been produced in connection with igneous rocks through the agency of the gases or vapors called mineralizers. They may be in the igneous mass itself or in cracks in the wall rock. The term is much used in discussions of ore deposits. (Kemp)

Pneumonaconiosis. A disease of the lungs due to habitually inhaling minute mineral or metallic particles, as of coal dust in Anthracosis; Miner's asthma, or Miner's lung. (Webster)

Poblador (Mex.). 1. Shift boss. 2. The miner who points the holes. (Dwight)

Poblar (Mex.). To set men at work in a mine. (Dwight)

Pobre (Sp.). Barren, sterile; said of rocks, veins, etc. Low-grade ore or metal. (Halse)

Pocão (Braz.). Pits in river beds in which diamond-bearing gravel is found. (Halse)

Pocket. 1. A small body of ore; an enlargement of a lode or vein; an irregular cavity containing ore. 2. A natural underground reservoir of water. 3. A receptacle, from which coal, ore, or waste is loaded into wagons or cars. (Raymond)
4. A ganister quarryman's local term for masses of rock 30 to 50 feet in width that are worked out and loaded, buttresses of untouched rock being left between them to support the upper masses. (Bowles)
5. A hole or depression in the wearing course of a roadway. (Bacon)
6. A glen or hollow among mountains. (Century)

Pocket hunter. A term used in California for a miner or prospector who searches for small gold deposits which occur on the surface in the Mother Lode and other districts of the State.

Pockety. Containing only occasional bunches of good ore. (Weed)

Poço (Braz.). 1. A well. 2. A shaft. *See also* Pozo. (Halse)

Pocono sandstone. A sandstone of the Mississippian system in the northern Appalachians, especially in Pennsylvania. It is oil-and-gas bearing in West Virginia, and is called by the drillers Big Injun sand. (Webster)

Poder (Corn.). Refuse copper ore (Standard). Sometimes spelled Podar.

Podrir jaguas (Colom.). To expose concentrates to the air in order to oxidize the sulphur, and thereby facilitate the extraction of the gold. (Halse)

Poicilitic. *See* Poikilitic.

Poikilit; Poikilopyrite. Same as Bornite.

Poikilitic. Having small crystals lying in all positions in larger crystals of another mineral; said of the fabric of some igneous rocks. (La Forge) A term proposed by G. H. Williams for those rocks which have mottled luster, because on the shining cleavage faces of some of their minerals small inclusions of others occur, producing the effect. The same thing was earlier called "luster mottling" by Pumpelly, but poikilitic has proved a useful term both in megascopic and microscopic work. It is also spelled poicilitic and poecilitic. (Kemp)

Point. 1. The tapering end of anything pointed, as of a needle, pencil, etc. 2. The tapering end of a tract of land; also a peak. 3. A stonecutter's tool with a pyramidal end used to smooth down rough surfaces. 4. A tapering rail, as in a frog or switch. 5. A pointed steam pipe used in a system of thawing frozen ground in sinking a shaft. 6. To finish a wall by filling the joints with cement or mortar. (Webster)
7. (Eng.) The bearing or direction, in reference to the magnetic meridian, in which an underground road is driven. (Gresley)
8. In quarrying, a type of wedge that tapers to a narrow, thin edge. (Bowles)
9. The end or bottom of a bore hole, as distinguished from the mouth or collar. (Du Pont)

Pointed box. A box, in the form of inverted pyramid or wedge, in which minerals, after crushing and sizing, are separated in a current of water (Raymond). *See* Spitzkasten.

Pointer. In masonry, a tool for clearing the mortar from old joints in order to point them (Standard). *See* Point, 6.

Point of the horse. The point where a lode splits or divides into two parts. (Whitney)

Point out. Said of a well in which the bore of the hole becomes reduced to a size too small to permit further work.

Poison tower. A chamber in which the fumes of sulphur and arsenic are condensed in the manufacture of arsenic in Saxony and Silesia. (Standard)

Poker. *See* Picker.

Pokkers and jetters (Eng.). Blocks or pulleys, which carry or support the connecting rods of pumps or engines. (Pryce)

Polar glacier. A glacier formed in the high latitudes. (Chamberlin, vol. 1, p. 239)

Polariscope. An instrument for studying the properties of, and examining substances in polarized light. (Webster)

Polarization. The process by which ordinary light is changed into polarized light. The plane at right angles to the plane of transverse vibration is called the plane of polarization. (Dana)

Polarized. Changed from the ordinary state, in which the transverse vibrations occur in all planes passing through the line of propagation, to a state in which they are in a single plane: said of light under certain conditions, especially when passed through a doubly refracting crystal. (La Forge)
Polarized light is used to distinguish minerals, particularly colorless, transparent ones, under the microscope.

Polarizer. That one of the two Nicol prisms in a polarizing microscope through which the light passes before reaching the mineral section which is being examined. (La Forge)

Polders (Dutch). Low fertile lands, reclaimed by vast systems of dikes and embankments from the sea. (Page)

Pole. 1. Either extremity of an axis of a sphere. (Webster)
2. In glass-making, to work (as molten glass) with a pole, to diminish the lilac color due to the presence of a low manganese oxide.
3. To work, as molten copper, with a pole to lessen the amount of copper oxide present. *See* Poling, 2. (Standard)

Polea (Sp.). Pulley wheel, or sheave. (Halse)

Pole case (Eng.). *See* Plunger case.

Pole chain. A surveyor's chain. (Standard)

Pole drill. In well boring, a system where a rigid connection is used between the drilling tools and the reciprocating beam. (Nat. Tube Co.)

Pole piece. A mass of iron forming the end of an electromagnet, by means of which the lines of magnetic force are concentrated and directed. (Century)

Pole tools. The tools used in drilling with rods. *See* Cable tools. (Raymond)

Policeman (Scot.). A movable guard over or around a shaft mouth or at mid-workings; safety gates. (Barrowman)

Poling. 1. Stirring a metallic bath (of copper, tin, or lead) with a pole of green wood, to cause ebullition and deoxidation in the refining process. (Raymond)
2. The act or process of temporarily protecting the face of a level, drift, cut, etc., by driving poles or planks along the sides of the yet unbroken ground (Webster). Used especially for holding up soft ground. *See also* Forepoling.

Polings. Poles used instead of planks for lagging. (Raymond) Also spelled Pollings.

Polishing bed. An apparatus in which stone slabs, etc., are rubbed smoth, usually with felt-covered blocks charged with a powder. (Standard)

Polishing cask. A barrel in which grained gunpowder is tumbled with graphite to glaze it. (Standard)

Polishing mill. A lap of metal, leather, or wood used by lapidaries in polishing gems. (Century)

Polishing oil. A term applied to that fraction, having a boiling point of 130° to 160° C., obtained in refining petroleum. (Bacon)

Polishing slate. A gray or yellow slate, consisting of siliceous organisms, used for polishing; found chiefly in the coal measures of Bohemia and in Auvergne, France. (Standard).

Polishing snake. A serpentine found near the Ayr, in Scotland, used formerly in polishing lithographic stones. (Standard)

Polishing stone. Polishing slate. (Standard)

Polissoir. In glass-making, a hardwood block with a long iron handle by which to flatten glass cylinders newly opened out; a flattener. (Standard)

Poll. 1. (Corn.) The head or striking part of a miner's hammer. (Raymond)
2. (So. Wales). To clean the shale off ironstone. (Gresley)

Pollos (Peru). Small bags of rich ore given by the miners, on Saturdays, to the proprietors. (Halse)

Poll pick. A pick with a head for breaking away hard partings in coal seams or knocking down rock already seamed by blasting. (Raymond)

Pollucite. Hydrous cæsium-sodium-aluminum silicate, $H_2O.(Cs,Na)_2O.Al_2O_3.5SiO_2$. Found in pegmatite. (U. S. Geol. Surv.)

Pollux. Same as Pollucite. (Standard)

Polrose. Same as Polroz.

Polroz (pronounced polrose). (Corn.). The pit underneath a water wheel. (Raymond)

Polstean (Corn.). A tin pit. (Davies)

Polvillo (Sp. Am.). **1.** Rich, black silver sulphide concentrates, obtained in the patio process. **2.** *P. buenos*, good ore; the richest ore. (Halse)

Polvillos (Mex.). Rich concentrates, or very high-grade ores. (Halse)

Polvo (Mex.). Dust; flue dust; *P. de carbón*, coal-dust. (Halse)

Pólvora (Sp.). Gunpowder. In Spanish America, a miner's term for any blasting material; *P. de algodón*, guncotton (Halse). *P. de mina*, any powder used in mining. (Lucas)

Polvorero (Sp.). Powder man; powder monkey. (Halse)

Polvorillas. **1.** (Peru) Decomposed sulphide of silver (Dwight). **2.** (Mex.) Altered marcasite containing some gold. **3.** *Estaño de p.* (Durango, Mex.), tin ore penetrating the country rock. **4.** (Chile) A ferruginous pulverulent copper ore, phillipite. (Halse)

Polvorín (Sp.). A powder magazine. (Halse)

Polybasite. Sulphide of silver and antimony, Ag_9SbS_6. If pure, it would contain 75.6 per cent silver, but copper replaces part of the silver; also arsenic replaces antimony. (U. S. Geol. Surv.)

Polychromatic. Showing a variety, or a change of colors. (Webster)

Polycrase. A columbate and titanate of yttrium, erbium, cerium, and uranium, with some iron and water. (U. S. Geol. Surv.)

Polydymite. A nickel sulphide, perhaps Ni_4S_5. (Dana)

Polygenetic. Originating in various ways or from various sources; formed at different places or times or from different parts; said specifically, in geology, of mountain ranges; opposed to Monogenetic. (Standard)

Polygenous; Polygenic. Composed of or containing several different kinds of material; heterogeneous in composition; as polygenous conglomerate. (Standard)

Polygonal masonry. Masonry formed of polygonal stones, or of stones strictly not coursed, whose joints exhibit any other than a right angle, but which are carefully fitted together. (Standard)

Polylith. A megalithic structure of several or many stones, as a dolmen or stone circle, and dating from Neolithic times. (Webster)

Polymeric. Having the same elements united in the same proportions by weight, but with different molecular weights. (Webster)

Polymerize. To change into another substance having the same elements in the same proportions, but a higher molecular weight. (Webster)

Polymnite. A stone marked with dendrites and black lines, that have a fancied resemblance to rivers, marshes, and ponds. (Standard)

Polymorph. A substance crystallizable in several distinct forms; also any one of these forms. (Webster)

Polymorphism. The property of having or presenting many forms; especially in crystallography, the ability of certain substances to crystallize with different axial ratios without change of chemical composition: thus, carbon as diamond crystallizes in the isometric system, and as graphite in the hexagonal system. (Standard)

Polyphase. In electricity, having or producing two or more phases, as a polyphase current (Webster). Same as Multiphase.

Polysomatic. Having a texture consisting of numerous small grains: said of minerals. (Standard)

Polysynthetic twinning. *See* Oscillatory twinning.

Polytelite. A silver-lead tetrahedrite found in Germany. (Standard)

Polyxen. An old synonym for platinum because so many other metals occur with it. (Chester)

Pómez (Sp.). Pumicestone. (Halse)

Pompeiian brick. A loosely used term, but it is probably most frequently applied to bricks 12 by 1½ by 4 inches in size, of medium dark shade, with a brownish body covered with iron spots. (Ries)

Poncelet wheel. A kind of undershot water wheel suitable for falls of less than six feet, having the buckets curved so that the water presses on them without impact. (Webster)

Ponding. The natural formation of a pond or lake in a watercourse; chiefly: (*a*) by a transverse mountain uplift whose rate of elevation exceeds that of the stream's erosion, or (*b*) by a dam caused by glaciers, volcanic ejecta, landslips, or alluvial cones or stronger streams. (Standard)

Pondlet. A little pond; in geology such a pond formed by ponding. (Standard)

Poner (Sp.). To put, to place; *P. en marcha*, to start to blow in a furnace; *P. en obra*, to construct, to build; *P. en principal*, to compel a stream of water to flow as straight as possible; *P. puerta* (Colom.), to timber an adit. (Halse)

Pongo (Ecuador). A narrow and dangerous pass in a river; a ford. (Halse)

Poriente (Mex.). West. *See* Oeste. (Dwight)

Ponsard furnace. A furnace in which the escaping combustion gases, passing through tubular flues, heat the incoming air continuously through the flue-walls. (Raymond)

Pontil. An iron rod used in glass-making to carry and manipulate hot bottles, etc., and having a projection at the end varying in shape according to the character of the ware carried. Called also Snap; Pontee; Ponto; Ponty; Puntee; Puntil; Punty. (Standard)

Ponty sticker. A workman who fixes a quantity of blown glass to the ponty or pontil. *See also* Pontil. (Century)

Pony putter (No. of Eng.). A boy who drives a pony in the mine workings.

Pood. A Russian weight of 36.113 pounds avoirdupois. (Webster)

Pool. 1. To cut; to insert a wedge for splitting; to undercut or undermine, as in excavating coal. 2. A belt of oil-producing territory (Webster). An oil or gas deposit occurring under a dome. *See* Dome, 5.

Poor rock (Mich.). The more or less barren part of the material taken down in mining. (Sanders, p. 89)

Pop. A short bore hole drilled in a large rock with a view to reducing the size of the rock by means of a small explosive charge (Skinner). Also called Pop hole; Pop shot.

Pop a bowlder. To place and explode a stick of dynamite on a bowlder so as to break it for easy removal from the mine. (Batesell *v.* American Zinc, Lead, etc., Co., 190 Missouri App., p. 235)

Pop hole. A secondary drill hole. (Bowles). *See* Pop.

Popo (Afr.). A green jasper highly prized in Guinea, perforated beads of it passing as money. (Standard)

Poppet; Puppet. 1. A pulley frame or the headgear over a shaft. A head-frame. 2. A valve that lifts bodily from its seat instead of being hinged. (Ihlseng)

Poppet head (Corn.). A timber frame over a shaft to carry the hoisting pulley (Raymond). A head-frame.

Poppet leg (Eng.). Any of the supporting legs of a poppet head. (Webster)

Pop shot. Same as a block-hole shot. (Du Pont) *See also* Pop.

Porcelain. A translucent kind of pottery, usually glazed, existing in many varieties, according to its composition and method of manufacture, but generally characterized by a glassy fracture, clear ring when struck, homogeneity throughout its thickness, and resistance to fire, water, and acids but hydrofluoric. Porcelain includes chiefly three varieties: (*a*, Hard porcelain, (*b*) natural soft porcelain, and (*c*) artificial soft porcelain. (Standard)

Porcelain clay. *See* Kaolin.

Porcelain color. A pigment such as is used in decorating porcelain. (Standard)

Porcelain gilding. A process of applying gold to china, usually with turpentine, and firing it, resulting in the adherence of the metallic gold to the china and the volatilization of the less permanent ingredients. The gold is then burnished. (Standard)

Porcelainite. A trade term for white stoneware, jasper, etc. (Standard)

Porcelainized. Resembling potter's clay that has been fired; specifically, in geology, applied to certain altered clays, shales, etc., which by the influence of heat have come to resemble clay ware or porcelain. (Standard)

Porcelain jasper. Burnt clay (Power). *See* Porcellanite.

Porcelain lace. A decorative material formed by soaking lace in porcelain slip and firing it. The threads of the fabric are consumed, leaving the pattern in a fine lace-like porcelain-ware. (Standard)

Porcelain mill. A mill for grinding materials for porcelain. (Standard)

Porcelain oven. The firing kiln used in baking porcelain. (Century)

Porcelain printing. The transfer of a printed picture to an unglazed article. (Standard)

Porcellanite. Fused shales and clay, that occur in the roof and floor of burned coal seams. The rock is quite common in the lignite districts of the West, where apparently spontaneous combustion has fired the seams in the past (Kemp). Called also Porcelain jasper, especially when red. (Standard)

Porch (York.). The arching of the station or landing at the bottom of a shaft. (Gresley)

Pórfido; Pórfiro. 1. (Sp.) Porphyry, *P. traquito*, trachyte porphyry. 2. (Venez.) A kind of hornstone sometimes becoming jasper. (Halse)

Porodic. Of, or pertaining to, uncrystalline or amorphous substances: a term proposed as a synonym for colloid by T. Sterry Hunt in "Systematic Mineralogy." (Standard)

Porodine. Breithaupt's name for amorphous rocks, such as are derived from gelatinous silica. (Kemp)

Porodite. Wadsworth's name proposed in 1879 for all the altered, fragmental forms of eruptive rocks, commonly called diabase tuff, schalstein, etc. (Kemp)

Porosity. The state or quality of being porous. The volume of pore space expressed as a percentage of the total volume of the rock mass.

Porronguito (Peru). A crude quicksilver measure. (Dwight)

Por pie (Mex.). The *patio* process. (Dwight)

Porpezite. A native alloy of argentiferous gold with palladium, the palladium content varying up to 10 per cent (Dana). Called also Palladium gold. From Porpez, Brazil.

Porphyrite. Any granophyric igneous rock containing phenocrysts of alkali-calcic plagioclase; diorite porphyry. (La Forge) To distinguish it from andesite, it is necessary to draw a contrast between surface flows (andesites) and intruded dikes or sheets (porphyrites); or between Tertiary and later lavas (andesites) and Pre-Tertiary ones (porphyrites); or between those with glassy or very finely crystalline groundmasses (andesites) and those with groundmasses of moderate coarseness (porphyrites). (Kemp)

Porphyritic. A textural term for those rocks which have larger crystals (phenocrysts) set in a finer groundmass, which may be crystalline or glassy, or both. Ro enbusch has sought to define it as the texture due to the recurrence of the period of crystallization of the same or similar minerals. While, except for porphyritic rocks with a glassy groundmass, this practically amounts to the same thing as the textural definition just given; it is idle for any writer to try to change so old, well-established and indispensable a conception. (Kemp)

Porphyrization. The process of porphyrizing, or the state of being porphyrized. (Standard)

Porphyrogenetic. Producing porphyry. (Standard)

Porphyroid. Metamorphic rocks with porphyritic texture, *i. e.*, with phenocrysts of feldspar or other minerals in a finer groundmass, yet shown by geological relations to be altered sediments, or tuffs. Fossil remains have even been detected in some. They are close relatives of hälleflintas. (Kemp) It simulates a porphyritic volcanic rock (La Forge)

Porphyry. 1. Any igneous rock in which relatively large conspicuous crystals (phenocrysts) are set in a finer-grained or glassy groundmass. Porphyries are generally named in accordance with their rock composition (*e. g.*, granite porphyry, trachyte porphyry) or with the character of the phenocrysts, as quartz porphyry. 2. Colloquially, the word "porphyry" is used to mean almost any igneous rock, occurring in sheets or dikes, particularly one that is spotted, soft, or light colored. (U. S. Geol. Surv.)

Porpnyry ware. A variety of Wedgwood ware. *See also* Pebble ware.

Porporino (It.). A glaze of mercury, tin, and sulphur, imitating gold; used by Italian and other artists of the middle ages for decorative purposes. (Standard)

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Portabandera (Sp.). In surveying, a flag bearer. (Halse)

Portable electric lamps. Electric lamps that, while lighted, may be carried about. This general term includes lamps operated by batteries and lamps connected to a source of power by a flexible conductor whose length limits the range over which the lamp may be used. (H. H. Clark)

Portable motors. Motors that are intended for service here and there as occasion requires and that are so constructed or mounted as to facilitate moving them from place to place. (H. H. Clark)

Portabandera (Sp.). In surveying, a chainman. (Halse)

Portage (Fr.). Applied by *voyageurs* to the space or watershed that lies between the navigable branches of rivers belonging to the same or different hydrographic basins, and so called from the circumstance that boats and goods have to be carried from the one branch to the other. (Page)

Portal. 1. The surface entrance to a drift, tunnel, adit, or entry.
2. The concrete or masonry arch, retaining wall, etc., erected at the opening of a drift, tunnel, or adit.

Portaviento (Sp.). A blast pipe for conveying air to a furnace. (Halse)

Porter. A long iron bar attached to a forging, or a piece in process of forging, by which to swing and turn it. (Standard)

Portland beds. *See* Portland limestone.

Portland cement. A hydraulic cement consisting of compounds of silica, lime, and alumina (Webster). It is obtained by burning to semifusion an intimate mixture of pulverized materials containing lime, silica, and alumina in varying proportions within certain narrow limits, and by pulverizing finely the clinker that results.

Portland limestone; Portland beds. A series of limestone strata, belonging to the upper part of the Oölite group, found chiefly in England, in the island of Portland, on the coast of Dorsetshire. The great supply of the building stone used in London is from these quarries. (Comstock)

Portland stone. 1. A yellowish white oölitic building limestone from the Isle of Portland, England. 2. A purplish-brown sandstone from Portland, Conn. 3. Concrete made with Portland cement, sand, and gravel. (Webster)

Porto marble. A siliceous limestone of a black color, traversed by gold-colored veins; called also black and gold marble. The source is Porto Venere and the Isle of Palmeria in the Gulf of Spezia. (Merrill)

Portrait stone. A flat diamond, sometimes with several rows of facets around its edge, for covering very small portraits. (Standard)

Posepnyte. An oxygenated hydrocarbon from the Great Western mercury mine, Lake County, Cal. It occurs in plates and nodules, sometimes brittle, occasionally hard; the color is light green to reddish-brown; and the specific gravity ranges from 0.85 to 0.985. (Bacon)

Position blocks. Mining claims that are in a position to contain a lode if it continues in the direction in which it has been proved in other claims, but which themselves have not been proved. (Duryee)

Positive crystal. A crystal in which the refractive index of the extraordinary ray is greater than the refractive index of the ordinary ray. (Dana)

Positive ore. Ore exposed on four sides in blocks of a size variously prescribed. *See* Ore developed, *also* Proved ore. (H. C. Hoover, p. 17) Ore which is exposed and properly sampled on four sides, in blocks of reasonable size, having in view the nature of the deposit as regards uniformity of value per ton and of the third dimension, or thickness. (Min. and Met. Soc. of Am., Bull. 64, p. 262)

Possession (Derb.). When a windlass or frame, is placed on a vein it is said to be in possession. (Min. Jour.)

Possessio pedis. The actual possession of a mining claim by the first arrival. (U. S. Min. Stat., pp. 117, 118)

Possessory title. Title vested in the locator of a mining claim by compliance with the State and Federal mining laws. (Duryee)

Possible ore. Ore which may exist below the lowest workings, or beyond the range of actual vision. (Min. and Met. Soc. of Am., Bull. 64, p. 262)

Post. 1. A mine timber. Commonly used in the metal mines instead of *leg*, which is the coal miner's term. 2. The support fastened between the roof and floor of a coal seam used with certain types of mining machines or augers. (Steel) 3. A pillar of coal or ore. (Raymond) 4. (Eng.). Limestone strata divided horizontally with very thin beds of slate. (Hunt) 5. (No. of Eng.). A fine-grained sandstone. (Gresley) 6. A charge of ore for a smelting furnace. 7. Any of the distance pieces to keep apart the frames or sets in a shaft; a studdle. (Webster) 8. To bring the survey and maps of a mine up to date.

Post-and-stall. A mode of working coal, in which a certain amount of coal is left as pillar and the remainder is taken away, forming rooms or other openings. The method is called also Bord-and-pillar, Pillar-and-breast, etc.

Post brake. A hand- or power-actuated brake of a hoisting engine, consisting of one or more posts fixed at one end, the free end being operated so as to bring the post into frictional contact with the surface of the hoisting drum.

Post drill. An auger (or drill) supported by a post. (Steel)

Poste (Sp.). Post; stull; stake; pillar. *Postes*, masonry pillars against which the legs of a headframe abut. (Halse)

Post furnace. *See* Pernot furnace.

Post glacial. Subsequent to a period of glaciation; subsequent to the Pleistocene, or glacial, period. (Webster)

Posting (York). Extracting the post or pillars (Gresley). Pillar robbing.

Posting hole (York). *See* Bolt, 3.

Post jack. A jack for pulling posts (Standard). *See* Post puller.

Post puller. A lever-and-chain device for safely removing and recovering posts from worked-out portions of a mine.

Post puncher. A coal-mining machine of the puncher type supported by a post. (Steel)

Poststone. A fine-grained sandstone. (Power)

Pot. 1. A rounded mass of roof slate resembling an iron pot and easily detached. It is separated from the other slate by old mud cracks (Steel). Smaller than a bell-mold, or kettle bottom. 2. A metallic or earthen vessel of any of many rounded forms. 3. In ceramics, to make or shape and fire, as a piece of earthenware. (Webster) 4. A crucible, usually of fire clay, often of graphite. 5. The mass of consolidated material often filling a pothole. *See* Pothole, 1. (Standard)

Potable. Drinkable (Webster). Said of water and beverages.

Potash. 1. The oxide of potassium, K_2O. Not an independent compound, but used as a basis of comparison for all potash minerals and artificial salts. The potash of commerce is derived from the minerals carnallite, kainite, sylvite (not found in the United States), and niter, and also from certain sea-weeds and wood ashes. *See also* Alunite; Alunogen; Kalinite; Niter. (U. S. Geol. Surv.)

Potash alum. *See* Kalinite.

Potash feldspar. *See* Orthoclase.

Potash mica. *See* Muscovite.

Potassic. Of, pertaining to, or containing potassium. (Standard)

Potassium. A soft, light, silver-white metal of the alkali group, occurring abundantly in nature, but always combined. Symbol, K; atomic weight, 39.10; specific gravity, 0.865. (Webster)

Potato stone. A potato-like geode of quartz, having a central cavity lined with crystals. (Power)

Pot bottom. A large bowlder in the roof slate, having the appearance of the rounded bottom of a pot, and which easily becomes detached (C. and M. M. P.). *See* Pot, 1; *also*, Bell-mold.

Pot clay. A highly refractory fire clay used in the manufacture of pottery. (Standard)

Pot earth. Potter's earth. (Webster)

Potencia (Sp.). 1. Power; *P. calorífica*, calorific power. 2. The width or thickness of a vein. (Halse)

Potential. The words "potential" and "voltage" are synonymous and mean electrical pressure. The potential or voltage of a circuit, machine, or any piece of electrical apparatus means the potential normally existing between the conductors of such circuit or the terminals of such machine or apparatus. In Bureau of Mines practice: (a) Any potential less than 301 volts shall be deemed a low potential. (b) Any potential greater than 301 volts but less than 651 volts shall be deemed a medium potential. (c) Any potential in excess of 651 volts shall be deemed a high potential. (H. H. Clark)

Potelot. An old chemical and mineralogical term for molybdenum sulphide. (Standard)

Pot growan (Corn.). Soft decomposed granite. (Whitney)

Pothole. 1. A kettle or circular hole generally deeper than wide, worn into the solid rock at falls and strong rapids by sand, gravel, and stones being spun around by the force of the current (Roy. Com.). Called also Kettle hole, Swallow hole.
2. A hole in the ground from which clay for pottery has been taken. (Webster)
3. A hole extending below the wearing course in a roadway. (Bacon)
4. (Lanc.). A small temporary ledge in a sinking-pit. (Gresley)
5. A rounded cavity in the roof of a mine caused by a fall of rock, coal, ore, etc.

Potin (Fr.) A coin alloy of the ancient Gauls, consisting of copper, zinc, lead, and tin. (Standard)

Pot kiln. A small lime kiln. (Webster).

Pot lead. Graphite or black lead. (Century)

Potlid. A concretion found in sandstone or shale of the Jurassic. (Standard)

Pot metal. 1. Cast iron suitable for making pots. 2. A copper-and-lead alloy formerly used for large pots and for faucets, etc. 3. Glass colored throughout while fused; pot-metal glass. (Standard)

Pot mizer (Eng.). A boring tool occasionally used in clays mixed with pebbles. It is made in the form of a spiral cone, that is open at the top to receive the pebbles carried up by the worm. (Gresley). Also spelled Pot miser.

Potomac formation; Potomac series. The lowest division of the Cretaceous period in the Atlantic and Gulf area of the United States. (Standard)

Potsdam formation. A member of the Upper Cambrian of the United States and Canada, especially the original typical strata on the north and east sides of the Adirondak mountains, New York (Standard)

Pot-setting. In glass-making, the placing of a pot in a furnace for the purpose of melting metal. (Standard)

Potstone. A coarse or impure variety of soapstone; so called from being easy to cut into pots owing to its softness. (Roy. Com.)

Potter. 1. One whose occupation is to make earthen vessels. 2. A maker of metal pots. (Webster)

Potter-Delprat process. The original Potter process (1902) was one of flotation in a 1 to 10 per cent acid solution. The mixture was 1:1 of ore and acid solution; this was agitated freely and heat applied, with the generation of CO_2 from the carbonates in the ore. This caused the sulphides to rise to the surface where they were either allowed to flow off continuously or were skimmed off. This was clearly a surface tension process. Delprat (1902) accomplished the same thing with acid salt-cake solution. Both processes were tried out at Broken Hill, Australia. Later patents indicate that oil has been found to assist in this process. These inventors worked independently, became involved in litigation and eventually pooled their interests. (Liddell)

Pottern ore. A term used in early metallurgical practice for an ore that becomes vetrified by heat, like the glazing of earthenware. (Standard)

Potters' clay; Pipe clay. Pure plastic clay, free from iron, and consequently white after-burning. (U. S. Geol. Surv.)

Potters' consumption. An acute bronchitis often occurring among persons employed in potteries, eventually affecting the lungs. Called also Potters' asthma, and Potters' bronchitis. (Standard)

Potters' lead. *See* Alquifou.

Potters' ore. *See* Alquifou.

Potters' wheel. A horizontal disk, revolving on a vertical spindle, and carrying the clay in the operation of throwing, which *see*. (Webster)

Pottery. 1. A shop or factory where earthen vessels are made. 2. The art of the potter; ceramics. 3. Ware made from certain earthy materials. Usually clay, molded while moist and soft and hardened by heat (Webster). The principal varieties are: (1) *Earthenware*, characterized by comparative softness and fusibility in a porcelain furnace. It includes: (a) *Unglazed ware;* (b) *Lustrous ware;* (c) *Glazed ware;* and (d) *Enameled ware.* (2) *Stoneware*, characterized by hardness and infusibility owing to the silica in the clay forming the body. *See* Porcelain.

Pottery kiln. A kiln for firing pottery. (Standard)

Pottery tree. Any one of various South American trees of the rose family, the hard and brittle bark of which contains a great quantity of silex, that the Indians obtain by burning and mingle with clay to form pottery. (Standard)

Potting. The placing of pots, containing either potassium nitrate or sodium nitrate and sulphuric acid, in the kilns used in the manufacture of sulphuric acid from sulphurous acid obtained from the combustion of sulphur in air. (Century)

Pottsville conglomerate. A conglomerate formation at the base of the Pennsylvanian in the Northern Appalachian region; millstone grit. (Webster)

Potty. Containing pots. *See* Pot, 1. Also applied to any roof in a coal mine which falls down in thick blocks. (Steel)

Potwork. 1. (Prov.) Pottery or pottery ware 2. (Eng.) A place where common pottery is made. (Standard)

Pound. 1. A unit of weight varying from 300 to about 1,070 grams, and commonly divided into 12 or 16 ounces. Among English-speaking peoples, the avoirdupois pound of 7,000 grains is the standard of weight for most purposes; but the troy pound of 5,760 grains is the standard for gold and silver and a few other costly articles. (Webster)
2. An underground reservoir of water. *See* Lodge, 1. 3. A large natural fissure or cavity in the strata. (Gresley)
4. The gold monetary unit of Great Britain equal to $4.8665.

Poundage. 1. (Scot.) Interest sometimes paid for money advanced before pay day. (Barrowman)
2. In salt making, the number of pounds of salt in a gallon or cubic foot of brine. (Webster)

Pounder. An ore-mill stamp. (Standard)

Poundstone. 1. (Shrop.) The stone or clay floor under the coal. (Gresley)
2. A stone, pebble, or large echinite, weighing a pound, used as a weight. (Webster)

Pounson (No. Wales). Dense soft clay underlying coal beds. (Gresley)

Pour. A term used in founding. 1. The amount of material, as melted metal, poured at a time. 2. The act, process, or operation of pouring melted metal; as, make a *pour* at noon. (Standard)

Pourie (Scot.) (pronounced poorie). A small oil can with a spout from which oil is poured to lubricate machinery. (Barrowman)

Pouring-gate. A channel in a mold, through which to pour molten metal. (Standard)

Pout (No. of Eng.). A tool for knocking out or drawing timbers in the mine workings. (Gresley)

Powder. 1. Any of various solid explosives, as gunpowder used in gunnery, blasting, etc. 2. The fine particles to which any dry substance is reduced by pounding, grinding, etc.

Powder barrel. A barrel made for the conveyance of gunpowder, usually containing 100 pounds (Standard). *Compare* Powder keg.

Powder house. A magazine for the temporary storage of explosives.

Powder jack. *See* Jack, 3.

Powder keg. A small metal keg for black blasting-powder, usually having a capacity sufficient for 25 pounds of powder.

Powder man. A man in charge of explosives in an operation of any nature requiring their use. A powder monkey.

Powder monkey. 1. A person employed at the powder house of a coal mine whose duty it is to deliver powder to the miners. (Folsom-Morris Coal Mining Co. *v.* DeVork, 160 Oklahoma, p. 65.)
2. In some metal mines, the person who distributes powder, dynamite and fuse to the miners at the working faces. This is a nautical term, but is frequently used in the mining industry.

Powdered ore (Aust.). Ore disseminated with vein stuff. (Power)

Powder mine. An excavation filled with powder for the purpose of blasting rocks. (Century)

Powellite. A mineral composed of calcium molybdate and calcium tungstate. $Ca,(Mo,W)O_4$. Occurs in minute yellow tetragmal pyramids. (Dana)

Powellizing process. A wood treatment consisting of impregnating the wood with a saccharin solution. It hardens the wood, and renders it fireproof to some extent. (Liddell)

Power. Any form of energy available for doing any kind of work; as steam-*power;* water-*power;* specifically, mechanical energy, as distinguished from work done by hand (Standard). Often used to indicate the electric current in a wire; as, to turn on the *power.*

Power distillate. The untreated kerosene condensates and still heavier distillates down to 28° Bé. from Mid-Continent petroleum, used as fuel in internal combustion engines. (Bacon)

Power drill. A rock drill employing steam, air, or electricity as a motive agent. (Ihlseng)

Power factor. The ratio of the electric power in watts to the apparent power in volt-amperes, in an alternating-current circuit or apparatus. (Webster)

Power gas. Any gas made for producing power, as for driving gas engines. (Webster)

Power house. The building in which the prime motor of a system of works is installed, and from which power is transmitted to the other parts of the system. (Standard)

Pox stone. A hard stone of a gray color found in some Staffordshire mines. (Century)

Pozo (Sp.). A pit, shaft, or winze; *P. de arrastre,* an inclined shaft or winze; *P. de bombas,* a pumping or drainage shaft; *P. de escalas,* a ladder-way shaft; *P. de extracción,* a hoisting shaft; *P. de ventilación,* an air shaft; *P. maestro,* the main shaft. (Halse)

Pozzuolana. A leucitic tuff quarried near Pozzuoli, in Italy, and used in the manufacture of hydraulic cement. (La Forge) Artificial pozzuolana is made from slag, ash, etc. (Webster) Also spelled Pozzolana and Pozzuolane.

Practical shot. In coal mining, a shot, for which the hole has been drilled in a direction selected with reasonable care, and that has been filled with powder and tamped with the same degree of care. (Bolen-Darnell Coal Co. *v.* Hicks, 190 Fed. Rept., p. 719)

Prase. A translucent and dull leek-green variety of chalcedonic quartz. (Dana)

Praseodymium. A rare metallic element. Symbol, Pr; atomic weight, 140.90; specific gravity, 6.475. (Webster)

Praseolite. A green alteration product of iolite. (Dana)

Prasoid. Resembling prase. (Standard)

Prata (Port.). Silver; *P. en barras,* silver in bars. (Halse)

Pre-Cambrian. Older than, or occurring before, the beginning of the Cambrian; especially, all that part of geologic time represented by rocks older than Cambrian; also, such pre-Cambrian rocks, collectively. (La Forge)

Precious. A term used by mineralogists to imply the finest variety of gems or minerals, *e. g.,* precious garnet, precious beryl, etc. (Power)

Precious garnet. A synonym for Pyrope.

Precious metals. The uncommon and highly valuable metals, especially gold and silver (Webster). Also platinum and associated metals.

Precious opal. Opal exhibiting a play of delicate colors. (Dana)

Precipice. A very steep, perpendicular or overhanging place, as the face of a cliff; an abrupt declivity. (Webster)

Precipitador (Mex.). A workman in a leaching mill who adds the precipitant to the silver solutions. (Dwight)

Precipitadora (Sp.). A precipitating vat or tank. (Halse)

Precipitant. Any agent, as a reagent, that when added or applied to a solution causes a precipitate of one or more of its constituents. (Standard)

Precipitate. A substance (held in solution in a liquid) thrown down in a solid form by the addition of some other substance in solution. When a substance held only mechanically in suspension in a liquid settles to the bottom it is called a sediment. (Roy. Com.)

Precipitation process. The treatment of lead ores by direct fusion with metallic iron or slag or ore rich in iron; performed generally in a shaft-furnace, rarely in a reverberatory. Often combined with the roasting and reduction process. (Raymond)

Predazzite. A contact rock at Predazzo, in the Tyrol, produced by an intrusion of syenite in crystalline dolomite. It is partly calcite and partly brucite or hydromagnesite. Pencatite is the same aggregate, darkened by grains of pyrrhotite. (Kemp)

Preemption Act. An Act providing for a patent to agricultural lands. The Act does not include mineral deposits, as they are expressly reserved. (Gold Hill Quartz Mining Co. *v.* Ish, 5 Oregon, p. 108)

Preferential flotation. A name applied to a special type of differential flotation in which a mixture of two flotative sulphide minerals is given a slight roast in order that one may be oxidized, and therefore not float, and the other remain unchanged. (O. C. Ralston)

Preglacial. Of, pertaining to, or occurring in geologic time before the glacial epoch. (Standard)

Preglacial drift. Loose sand and gravel lying beneath the till in Iceland. (Century)

Preheat. To heat previously, as a charge to be subsequently treated in an electric furnace, or compressed air before it is allowed to expand in a compressed-air engine. (Webster)

Prehnite. A hydrous silicate of calcium and aluminum, $H_2Ca_2Al_3(SiO_4)_3$. (Dana)

Premeridian. In the terminology of Rogers, denoting the rocks of the Lower Helderberg period immediately underlying the Meridian series; characterizing the seventh of the fifteen series of the Paleozoic strata of the Appalachian region. (Standard) Usage is obsolete.

Premium. 1. The consideration paid, whether in money or otherwise, for a contract of insurance. 2. The excess in purchasing power, or exchange value, of one form of money over another of the same nominal value, as of gold dollars over paper ones, or of silver dollars over paper ones; above par. (Webster)

Prensa (Mex.). A vise; a press. (Dwight)

Preparación (Sp.). 1. Opening out or development as distinguished from exploitation. 2. *P. mecánica*, ore dressing. (Halse)

Preparar (Sp.). To prepare; *P. minerales*, to dress ores. (Halse)

Preparation. The treatment of ore or coal to reject waste. *See* Concentration; *also* Ore dressing.

Prepare. 1. To shear or undermine the coal so that it can be readily blasted loose. 2. (Ark.) To make a cartridge for a blast. 3. (Ark.) To charge a blast hole. (Steel)

Prerelease. The act of discharging steam or air from an engine cylinder before the piston has reached the end of its stroke. (Ihlseng)

Presa (Sp.). A dam. (Min. Jour.)

Present worth. That principal which, drawing interest at a given rate, will amount to the given sum at the date on which this is to be paid (Webster). The value *now* of a sum due at some future date, with or without interest. (E. B. Skinner, p. 68)

Press cake. The incorporated gunpowder or mill cake, pressed and ready for granulation. (Century)

Pressed distillate. The oil coming from the presses when paraffin wax is recovered. (Bacon)

Pressed fuel. An artificial fuel prepared from coal dust, waste coal, etc., incorporated with other ingredients, as tar, and compressed in molds into blocks (Century). Briquets.

Presser. In ceramics, the workman who molds the handle, ears, and decorative reliefs to be applied to a pottery vessel before firing. (Century)

Pressure anemometer. An anemometer showing the wind's velocity by means of the pressure exerted (Standard), as for measuring the velocity of ventilating air currents in mines.

Pressure blower. A machine or blower having either pistons, cams, or fans for furnishing an air-blast above atmospheric pressure. (Standard)

Pressure box. A cistern at a considerable elevation, fed by a flume, ditch or pipe, to supply water under a head. (Webster)

Pressure fan. 1. A fan supplying air under pressure (Webster). 2. A fan that forces fresh air into a mine as distinguished from one that exhausts air from the mine.

Pressure figure. A figure produced by intersecting lines of parting, due to gliding when certain minerals, like mica, are compressed by a blunt point. They are similar in character, but not in position, to the so-called *percussion-figures* produced by a sharp point. (Standard)

Pressure filter. A filter in which the liquid to be filtered is forced through filtering material by a pressure greater than its own weight in the filter. (Century)

Pressure-forging. Forging done by a steady pressure, as in a hydraulic press. (Standard)

Pressure wires. Wires leading from various points of an electric system to a central station, where a voltmeter indicates the potential of the system at those points. (Webster)

Prian (Corn.). Soft white clay. (Raymond)

Priceite. A friable, chalky boron mineral similar to colemanite. *See also* Colemanite. (U. S. Geol. Surv.)

Pricked. In ceramics, ornamented with dotted depressions made with a single point or with a comb. (Standard)

Pricker. 1. (Eng.) A thin brass rod for making a hole in the stemming, when blasting, for the insertion of a fuse. 2. (So. Staff.) A long iron rod or poker used for loosening coal from overhead. 3. A piece of bent wire by which the size of the flame of a safety lamp is regulated, without removing the top of the lamp. It passes up into the lamp through the oil reservoir in a tube. (Gresley)
4. An iron rod for probing or sounding a bog, quicksand, etc. (Webster)

Pricking. 1. The act of lifting or loosening with a lever or a pick. (Gresley)
2. (Scot.) A thin stratum suitable for holing. (Barrowman)

Pricking bar. 1. A bar used in opening the tap hole of a furnace. 2. A rod used for removing obstructions from tuyères and blow pipes. (Willcox)

Pride of the country (Corn.). Rich bodies of ore near the surface. (Davies)

Prill. 1. (Corn.) The best ore after cobbing. 2. *See* Button. (Raymond)
3. (Eng.) A nugget of virgin metal. (Webster)

Prillion. Tin extracted from slag. Also spelled Prillon. (Standard)

Prima oil. The trade name for a shale oil with a low density and low boiling point. (Bacon)

Primary. 1. Characteristic of or existing in a rock at the time of its formation: said of minerals, textures, etc., of rocks; essentially the same as Original 1, and contrasted with Derived, or Secondary, 1. 2. Formed directly by solidification from fusion or deposition from solution: said of igneous rocks and chemical sediments and contrasted with Derivative (little used). 3. Originally the same as the present pre-Cambrian, then extended to include the present Paleozoic, and later restricted to Paleozoic; finally abandoned and now obsolete. (La Forge)

Primary blasting. A term applied to the blasts by means of which the original rock ledge is broken into fragments. (Bowles)

Primary clay. Clay that is found in its place of formation (Webster). Residual clay.

Primary coil. The coil through which the primary current passes in an induction coil or transformer. (Webster)

Primary drilling. The process of drilling holes in a solid rock-ledge in preparation for a blast by means of which the rock is thrown down. (Bowles)

Primary minerals. Those minerals that retain their original form and composition, as original sulphides. *Compare* Secondary minerals. *See* Primary, 1.

Prime. 1. To pour water into to displace air and thus promote suction; as, to *prime* a pump (Standard). 2. To insert a detonator into a cartridge of explosive and attach it thereto. (Du Pont)

Prime city naphtha. A petroleum product with a gravity of from 73° to 68° Bé. *See* Benzoline, 1. (Bacon)

Prime mover. An engine, or machine, the object of which is to receive and modify force and motion as supplied by some natural source, and apply them to drive other machinery, as a water wheel, a windmill, turbine, steam engine, etc. (Webster)

Primer. A dynamite cartridge, or package of any explosive, which contains the detonator, whether blasting-cap or electric blasting-cap. (Du Pont)

Prime white oil. A kerosene of prime white color, that is intermediate in color between water-white and standard-white. *See* Standard-white oil. (Bacon)

Priming horn. A miner's or quarryman's powder horn. (Century)

Priming powder. Detonating or fulminating powder. (Standard)

Priming tube. A tube containing fulminating powder for firing a charge (Standard). A detonator.

Priming valve. 1. A safety valve on the working cylinder of a steam engine to discharge the priming. (Standard)
2. A valve connected with the discharge pipe of a force pump through which the pump may be primed.

Primitive. Same as Primary 3, *which see:* obsolete. (La Forge)

Primitive circle. In crystallography, the great circle in the plane of projection (stereographic projection). (A. F. Rogers)

Primitive form. A crystal form from which other forms may be derived. (A. F. Rogers)

Primitive rocks. Rocks supposed to be first formed, and containing no organic remains, being irregularly crystallized and aggregated without a cement, such as granite, gneiss, and the like (Thompson). *See* Primary

Primordial. In geology, formerly used for what is now called Cambrian, *which see:* Obsolete. (La Forge) The name was given by Barrande to the oldest fossiliferous rocks as developed in Bohemia. It corresponds with the British Cambrian. (Roy. Com.)

Primordial zone. The lowest geological formation known to contain a fossil fauna; equivalent to the Cambrian. (Standard) Usage now obsolete.

Principal. 1. (Colom.) Artificial channel or drain used in alluvial mining. 2. (Sp.) Shaft of a water wheel. (Hálse)

Principal axis. In the tetragonal and hexagonal systems, the vertical crystallographic axis; hence, what is the same thing, in uniaxial crystals, the optic axis. (La Forge)

Principal meridian. A meridian line accurately located and used as a basis from which to construct interior lines of monuments, called guide meridians, for the use of surveyors. (Standard)

Principal section. in crystallography, the plane passing through the optical axis of a crystal. (Standard)

Pringap. The distance between two mining possessions in Derbyshire (Raymond). An odd piece of mining ground of less than half a mere. (Mander)

Print. 1. A projection on a core, by which it is placed and held in proper position in a mold; a core point. 2. An impression of a pattern or of a part thereof, as in molding sand. (Standard)

Printed ware. Pottery decorated by transfer-printing. (Standard)

Printing body. Pottery when in condition to be printed; biscuit. (Standard)

Prism. 1. In crystallography, in the tetragonal and hexagonal systems, an open form of similar faces parallel to the vertical axis. 2. In the orthorhombic, monoclinic, and triclinic systems, an open form of similar faces parallel to the vertical axis and intersecting both lateral axes. (La Forge) 3. A solid whose bases or ends are similar, equal, and parallel polygons, the faces being parallelograms. (Standard)

Prism level. A kind of dumpy level with a mirror over the level tube, and a pair of prisms so placed that the position of the level bubble can be determined at any time by the levelman without the necessity of moving his head from the eyepiece. (Webster)

Prize (Leic.). To lift or loosen with a lever or a pick. (Gresley)

Probable ore. Any blocked ore not certain enough to be "in sight" and all ore that is exposed for sampling, but of which the limits and continuity have not been proved by blocking. Also, it includes any undiscovered ore of which there is a strong probability of existence. Ore that is exposed on either two or three sides. Whether two or three sides be taken as a basis will depend on the character of the deposit. (Min. and Met. Soc. of Am., Bull. 64, pp. 258 and 262)

Probing (Derb.). Boring or drilling for testing mineral ground. (Mander)

Procellas. In glass-making, a pair of spring-tongs with flat jaws, used to reduce the external diameter of a glass object as it is rotated by the pontil. Also spelled Pucellas. (Sandard)

Processioner (Local U. S.) An official land-surveyor. (Standard)

Processioning (Prov. U. S.) The official inspection of boundaries and maintenance of surveyors' marks, as in North Carolina and Tennessee and possibly in some of the British colonies. (Standard)

Prochlorite. One of the chlorite group. Lower in silicon than clinochlore, and with ferrous iron usually, but not always, in large amount. (Dana)

Produce. 1. The marketable ores or minerals produced by mining and dressing. 2. (Corn.) The amount of fine copper in one hundred parts of ore. (Raymond)

Producer. 1. One who grows agricultural products, or manufactures crude materials into articles of use (Webster). Also one who extracts, ore or coal from mines; rock from quarries; metals from ore by metallurgical processes, etc. *See* Production.
2. *See* Gas producer.

Producer gas. A combustible gas to be used for fuel, for driving gas engines, for making illuminating gas, etc., made by forcing steam and air through a layer of incandescent fuel, as coke, the resulting gas consisting largely of carbon monoxide and nitrogen. (Webster)

Production. That which is produced or made; any tangible result of industrial or other labor (Standard). The yield or output of a mine, metallurgical plant, or quarry.

Productive. Yielding payable ore. (Duryee)

Producto (Sp.). Product, return, or yield. (Halse)

Profile. 1. An outline or contour; a drawing in outline, as in vertical section or the like. Specifically, the outline of a vertical section through a country or line of work, showing actual or projected elevations and hollows, generally with the vertical scale much greater than the horizontal. 2. In ceramics, a metal plate giving in hollow section the exterior outline of half of the object to be made, so that when placed against the clay on the rotating throwing wheel it will shape it to the desired form. (Standard)

Profile paper. Paper ruled horizontally and vertically with equidistant lines to scale, for convenience in drawing engineering profiles in either direction. (Standard)

Profit in sight. Probable gross profit from a mine's ore reserves, as distinct from the ground still to be blocked out. (Skinner)

Profundidad (Sp.). Depth, as of a shaft or winze. (Halse)

Profundización (Sp.). Sinking or deepening. (Halse)

Progressive powder. A gunpowder made so that it burns slowly at first, and then with increasing rapidity, to avoid the extreme pressure caused by the explosion of powders in which the combustion is instantaneous. (Webster) A slow-burning explosive. *Compare* Propellant explosives.

Projection. 1. In alchemy, the casting of a substance, especially philosopher's stone, into a molten metal with the supposed result of transmuting the latter. (Standard)
2. The act or result of constructing a figure upon a plane or other sur-

face which corresponds point for point with a sphere, spheroid or other figure. (Century)

Prolong. Generally a simple cone or canister of sheet iron for condensing zinc. The chief requisites are the provisions of ample cooling surface, the insurance that the gas will come in contact therewith in order to assist in the condensation of zinc which may be carried off by the escaping stream of gas. Prolongs are of two types, vertical and horizontal. (Ingalls, p. 554)

Promising. Looking as if likely to turn out well; as in mining, a *promising* prospect.

Promontorio. 1. (Sp.). A considerable elevation of ground; a promontory or headland. 2. (Mex.). An irregular deposit or mass. (Halse)

Promoter. A person who alone or with others sets on foot, and takes the preliminary steps in, a scheme or undertaking for the organization of a company, the floating of bonds, stocks, etc., or the carrying out of any business project (Webster); *e. g.*, a mine *promoter.*

Prong (Eng.). The forked end of the bucket-pump rods for attachment to the traveling valve and seat. (C. and M. M. P.)

Prony's dynamometer. A dynamometer for obtaining data for computing power delivered by turbines and other waterwheels, or from the fly wheel of an engine, or transmitted by shafting. (Century)

Prop. A timber set upright or at right angles to the dip, to support the roof rock (Chance). A strut or post in tunnel construction work, either vertical or raking, usually of round timber, used as a support, or stay. A raking prop is sometimes called a raker.

Propagate. To transmit or spread from place to place; as coal-dust propagates a mine explosion.

Propagated blast. A blast consisting of a number of unprimed charges of explosives and only one hole primed, generally for the purpose of ditching, where each charge is detonated by the explosion of the adjacent one, the shock being transmitted through the wet soil. In this method, one detonator fired in the middle of a line of holes is capable of bringing about the explosion of several hundred such charges. (Du Pont)

Propellant explosives. Those explosives in which the velocities of combustion are regulated, either by chemical composition or by preparing the explosive in various shapes. (Brunswig, p. 236)

Prop-crib timbering. Shaft timbering with cribs kept at the proper distance apart by means of props. (Raymond)

Prophylene-glycol dinitrate explosive. A term used by Dr. Charles E. Munroe to define an explosive containing the liquid ingredients named, in contradistinction to *dynamite*, which contains nitroglycerin. In commerce the term *dynamite* is loosely used to include any mixture containing a liquid explosive.

Propiedad (Sp.). Property; *P. minera*, a mining property; *P. mueble*, personal property; *P. raiz*, real estate. (Halse)

Propietario (Sp.). Proprietor; *P. de una mina*, owner of a mine. (Halse)

Prop maul (Eng.). An iron maul, with a wooden handle, used by the deputies in drawing or setting props. (G. C. Greenwell)

Proposition. A project, undertaking, affair, or the like, involving some action, as in carrying out, managing, operating, passing of judgment, with reference to it; as in mining, an alluvial *proposition.* (Webster)

Propping. The timbering of a mine. (Gresley)

Prop slicing. *See* Top slicing and cover caving.

Prop stay. A stay used to strengthen tubes and water spaces, in steam boilers, or large tubes and annular spaces, in air tanks, and resist pressure tending to collapse or rupture (Century). The opposite of tie-rod, which resists tension.

Propulsive. A term applied to the kind of force exerted by an explosive that tends to push out masses of rock rather than to break them up. (Bowles) *See also* Progressive powder.

Prop wood. (Eng.). Timber suitable for cutting, or already cut into props. *See* Prop. (Gresley)

Propylite. A name given by von Richthofen in 1867 to certain andesites, formed at the beginning of Tertiary time, that were thought to resemble the old diorites and diorite-porphyrites. They had been previously

called by him greenstone-trachytes in Hungary, but were not named propylite until he found them in Nevada and California. The western propylites have been since conclusively shown by several American petrographers to be only more or less altered andesites. The literature of the name furnishes an interesting and amusing exhibition of the efforts of those petrographers, who were influenced by the time-myth in the classification of igneous rocks, to draw distinctions, where there were no differences. The name means 'before the gates,' alluding to their position at the beginning or entrance to the Tertiary, which was supposed to usher in the true, volcanic eruptions of geological time. (Kemp) Now obsolete.

Propylitic. A term that may be applied to any kind of a vein, meaning that the ore solution which has furnished the vein filling has also effected a decomposition or alteration of the wall rock as well, so that the walls of the vein consist of clay, talc, etc. (Shamel, p. 155)

Prórroga (Mex.). An extension of time. (Dwight)

Prospect. 1. The name given to any mine workings the value of which has not yet been made manifest. A prospect is to a mine what mineral is to ore (Ihlseng). A mineral deposit, or excavation more or less superficial, indicating a deposit. (Webster)

2. To examine land for the possible occurrence of coal or valuable minerals by drilling holes, ditching, or other work. (Steel)

3. The gold or other mineral got by working a sample of ore.

Prospectar; Explorar; Catear (Sp.) To prospect. (Halse)

Prospect hole. Any shaft, pit, drift, or drill hole made for the purpose of prospecting the mineral-bearing ground.

Prospecting. Searching for new deposits; *also*, preliminary explorations to test the value of lodes or placers already known to exist.

Prospecting claim (Aust.). A larger mining claim than is usually granted, and given to the first prospector who discovers gold in a district. (Webster)

Prospective ore. Ore that can not be included as proved or probable, nor definitely known or stated in terms of tonnage. *See* Possible ore, *also* Ore expectant. (H. C. Hoover, p. 19)

Prospector. A person engaged in exploring for valuable minerals, or in testing supposed discoveries of the same. (Roy. Com.)

Prospect tunnel, or entry. A tunnel or entry driven through barren measures, or a fault, to ascertain the character of strata beyond. (C. and M. M. P.)

Prospectus. A preliminary written or printed statement of a plan or scheme proposed affording a prospect of its nature, as of a business undertaking, the conditions of incorporation, and apparent future promise of a company, issued by its promotors (Webster). Common in mining.

Protaxis. In geology, the oldest of the mountain ranges in a mountain chain (Standard). (Now obsolete).

Protean stone. An alabaster-like artificial stone made from gypsum. (Standard)

Protector lamp (Eng.). A safety lamp the flame of which it is impossible to expose to the outside atmosphere, as unlocking, or rather unscrewing it, extinguishes the light. (Gresley)

Proteolite. An old name for certain contact rocks produced by granite intrusions from slates. *Compare* Cornubianite. (Kemp)

Proterobase. Originally applied by Gümbel, 1874, to Silurian or earlier diabases with hornblende. The frequency of the paramorphism of augite to hornblende has led others to apply it to diabases with uralitized augite. Rosenbusch restricts i to diabases with original hornblende. (Kemp)

Proterozoic. In the usage of some geologists, the era that comprises the Algonkian period (La Forge). The era that elapsed between the close of the formation of the igneous complex and the beginning of the lowest system, which is now known to contain abundant well-preserved fossils. The time between the close of the Archeozoic and the Paleozoic and including the Huronian, Animikean, and Keweenawan periods. (Chamberlin)

Protoclase. A rock possessing cleavage originally developed during sedimentation under water or cooling from magma, such as bedding, flow structure, etc. *Compare* Metaclase. (U. S. Geol. Surv., Bull. 239, p. 12)

Protoclastic structure. 1. An original magmatic flow structure. (Leith, p. 87). 2. Having a structure derived from the solidification of molten rock, in which the crystals are more or less fractured or brecciated by the operation of forces during a late stage of the original consolidation. (Standard)

Protocolo (Sp.). Minutes; protocol; registry; a judicial registry. (Halse)

Protogenic; Protogenetic. Of or pertaining to a first origin or production. Specifically: Of or pertaining to those crystalline rocks supposed to be formed by igneous action. (Standard)

Protogine. An old name for a granite or gneiss in the Alps, consisting of quartz, orthoclase, and chlorite or sericite, the last-named of which was formerly erroneously taken for talc. The laminated structure from dynamic metamorphism is often pronounced (Kemp). A chloritic or sericitic variety of granite gneiss: obsolescent. (La Forge)

Protore. Low-grade material which by natural processes of enrichment is convertible into ore; as, for example, the so-called primary ore of the disseminated copper deposits, containing generally less than .5 per cent of copper. (Ransome)

Protoxide. The oxide of any metal containing the least proportion of oxygen. (Weed)

Protractor. An instrument for laying down and measuring angles on paper: used in drawing and plotting. (Webster)

Proud coal (Scot.). Coal that naturally splits off in flakes or slabs when worked in a particular manner, producing waste, by deterioration. (Gresley)

Proustite. A light-ruby, silver-arsenic sulphide mineral, $2Ag_2S.As_2S_3$. Contains 65.4 per cent silver. (U. S. Geol. Surv.)

Prove. 1. (Eng.) To ascertain by boring, driving, etc., the position and character of a coal seam, a fault, etc. 2. (Scot.) To examine a mine in search of fire-damp, known as 'proving the pit.' (Gresley)

Proved ore. Ore where there is practically no risk of failure of continuity (H. C. Hoover, p. 19). *See also* Positive ore.

Prove up. To show that the requirements for receiving a patent for government land have been fulfilled. (Webster)

Providor (Braz.). A collector of tribute and other taxes. (Halse)

Proving hole. 1. A borehole drilled for prospecting purposes. 2. A small heading driven to find a bed or vein lost by a dislocation of the strata, or to prove the quality of the ore in advance of regular workings. (Chance)

Proximate analysis. The determination of the compounds contained in a mixture as distinguished from *ultimate analysis*, which is the determination of the elements contained in a compound (Standard). Used in the analysis of coal.

Prueba (Mex.). A test; *P. de crudo*, a test made when the *torta* is supposed to be *rendida*, or worked, to ascertain whether there is sufficient mercury present. (Dwight)

Prussic acid. Same as Hydrocyanic acid.

Pryan. 1. (Corn.) A fine, white, somewhat friable clay (Webster). Also Prian. 2. Ore in small pebbles mixed with clay. (U. S. Geol. Surv.)

Prypole. The pole which forms the prop of a hoisting gin, and stands facing the windlass. (Webster)

Psammite. Any sedimentary rock composed of detrital material of the size and general character of sand, as sandstone and arkose. (La Forge)

Psammitic. Made up of particles the size of sand. (Power)

Psephite. Any sedimentary rock composed of coarse detrital material, such as pebbles: said of such rocks as conglomerate. (La Forge) The name is derived from the Greek for pebble. (Kemp)

Psephitic. Made up of small stones. (Power)

Pseudamygdule. A mineral nodule that replaces a primary constituent of a crystalline eruptive rock, so as to appear like a true vesicular filling or amygdule. (Standard)

Pseudo. As a prefix, implies something false; but its meaning is modified by the subject to which it applies. (Emmons)

Pseudobrookite. A titanium-iron oxide resembling brookite, occurring in cavities of some volcanic rocks, as andesite. (Century)

Pseudochrysolite. A synonym for Moldauite; Bouteillenstein. (Kemp)

Pseudoconglomerate. A rock so broken up into displaced fragments and interpenetrated by intrusive material as to appear like a conglomerate.

Pseudocrystalline. Composed of detrital crystalline grains little worn and solidly compacted by siliceous or other mineral accretion, so as strongly to resemble true crystalline rock. (Standard)

Pseudodiabase. A name proposed by G. F. Becker for certain metamorphic rocks in the Coast ranges of California that are supposed to have been derived from sediments, yet that have the minerals and texture of diabase. *Compare* Metadiabase, which means the same thing and has precedence. (Kemp)

Pseudodiorite. Dioritic rocks produced as described under pseudodiabase. (Kemp)

Pseudogalena. Sphalerite. (Standard)

Pseudoisotope. An element behaving as an isotope with respect to another element, as far as chemical precipitation is concerned, but not truly isotopic with it as evidenced by having a different atomic number, atomic weight, and being separable from it by fractional crystallization. (S. C. Lind)

Pseudoisotopy. Having the properties of a pseudoisotope.

Pseudomalachite. A hydrous phosphate of copper occurring ordinarily in massive forms of bright-green color, much resembling malachite.

Pseudomorph. A crystal, or apparent crystal, having the outward form proper to another species of mineral, which it has replaced by substitution or by chemical alteration. (La Forge)

Pseudomorphous quartz. Quartz under the forms of many of the mineral species, which it has taken through either the alteration or replacement of crystals of those species. The most common quartz pseudomorphs are those of calcite, barite, fluorite, and siderite. *Silicified wood* is quartz pseudomorph after wood.

Pseudoporphyritic. Having a porphyritic appearance or character, but no true phenocrysts. (Standard)

Pseudospherulite. A spherulite in which the rays are composed of two different determinable substances, usually quartz and feldspar.

Pseudostromatism. A rock structure approximately resembling false bedding produced by numerous minor thrust-fault planes. (Standard)

Pseudosymmetry. Apparent symmetry, of higher grade than that proper to the mineral, generally due to twinning (La Forge). Called also Mimetry.

Pseudovolcano. A false volcano; an eruptive vent not emitting lava like a true volcano. (Webster)

Psilomelane. A manganese hydrate and a common ore of manganese. Perhaps H_4MnO_5. (U. S. Geol. Surv.)

Psychrometer. An instrument for determining the tension of aqueous vapor in the air or the relative humidity (Century). *See* Sling psychrometer.

Ptilolite. A zeolitic mineral occurring in white tufts or spongy masses of minute acicular crystals, formed in cavities of augite-andesite. (Century)

Public domain. All lands and waters in the possession and ownership of the United States, including lands owned by the several States, as distinguished from lands owned by individuals and corporations. (Kinney on Irrigation, sec. 124; Winters *v.* United States, 143 Fed. Rept., p. 748)

Public land. Land subject to sale or other disposition by the United States under general laws. Land once reserved by the Government or appropriated for any special purpose ceases to be a part of the public lands. (Winters *v.* United States, 143 Fed. Rept., p. 748; Kinney on Irrigation, sec. 124.)

Puchos (Bol.). Small heaps of roasted ore. (Halse)

Puck. A wall or pillar built of waste rock to support the roof. (Raymond)

Pudding stone. A conglomerate in which the pebbles are rounded. *Compare* Breccia. (Raymond)

Puddle. 1. To subject iron to the process of puddling so as to convert it from cast-iron into wrought iron. 2. Clay, or a mixture of clay and sand, kneaded or worked when wet, to render it impervious to water. Also called Puddling. 3. A small pool. (Webster)

Puddle-ball. The lump of pasty wrought-iron taken from the puddling furnace to be hammered or rolled. (Webster)

Puddle-bar. An iron bar made at a single heat from a puddle-ball by hammering and rolling. (Webster)

Puddler. 1. One who converts cast-iron into wrought-iron by puddling. 2. A rabble used in puddling. 3. A puddling furnace. 4. A system of small pipes admitting compressed air to a tank of water and zinc chloride to effect a thorough solution for use as a timber preservative. (Webser)

Puddle rolls. The roughing-rolls through which puddle-balls are passed to be converted into bars. Called also Puddle-train. (Standard)

Puddle-steel. Steel made by the puddling process.

Puddler's mine. A soft, compact hematite, sometimes used for the bottoms of puddling furnaces. (Webster)

Puddle train. A train of rolls for reducing squeezed puddle-balls to puddle or muck-bars. (Raymond)

Puddling. 1. The process of decarburizing cast-iron by fusion on the hearth of a reverberatory furnace lined (fixed or fettled) with ore or other material rich in oxide of iron. The bath is stirred with a *rabble* to expose it to the action of the lining and of an air current. The escape of carbonic oxide causes it to boil, whence the early name of this method of puddling, viz., boiling. The term puddling, now applied in metallurgy exclusively to the above process, originally referred to the puddling of clay or clay and charcoal upon the masonry of a furnace hearth to form a lining. Ditches, reservoirs, etc., are puddled with clay to make them water-tight. 2. *See* Dry puddling. (Raymond)

Puddling furnace. A reverberatory furnace for puddling pig iron. (Standard)

Puddling machine (U. S. and Aust.). A machine used for mixing auriferous clays with water to the proper consistency for the separation of the ore. (Davies)

Puddock (Scot.). Cast-iron plate forming the crossing of flanged mine-car rails. (Barrowman)

Pudinga (Mex.). Pudding stone; conglomerate. (Dwight)

Pueble (Mex.). The actual working of a mine. The total working force employed in a mine. A shift. (Dwight)

Puente (Sp.). 1. Any bridge of wood or metal. 2. A suspended platform in stope or shaft. 3. A stull. (Halse)

Puerta. 1. (Sp.) A door, gate; *P. de grasa*, a slag tap; *P. de plomo*, lead tap. 2. (Colom.) A timber frame or door set. (Halse)
3. *Puertas*, massive barren rocks or "horses", occurring in a vein, which must be removed to regain the pay streak. (Dwight)

Puerto (Sp.). Port or harbor. A mountain pass. (Dwight)

Puffer. Small stationary engine used for hoisting material on construction work, in operating a haulage-way, or for hoisting at shallow mines, especially in prospecting and development work.

Puffer boy. A person employed to operate an engine used for hauling loaded mine cars through haulage-ways. (Lahti *v.* Tamarack Min. Co., 152 N. W. Rept., 907) Also the operator of any small stationary hoisting engine.

Pug. 1. (New Zealand) Selvage; clay (Power). *See also* Pugs.
2. A pug mill. 3. Tempered or pugged clay. 4. To mix and stir when wet, as clay for bricks, pottery, etc. 5. To fill or stop with clay by tamping. (Webster)

Pug engine (Scot.). A small locomotive. (Barrowman)

Pugging. The process of mixing and working clay for bricks, etc. (Century). Same as Tempering.

Pug mill. A mill for kneading or mixing clay. (Ingalls, p. 233)

Pugs (Scot.). A stratum of hard coal in a free coal seam, *e. g.*, in the Main coal seam of Lanarkshire (Barrowman). *See also* Pug, 1.

Pug tub. *See* Settler.

Puisard (Fr.). A sump. (Gresley)

Puit (Fr.). A shaft or pit. (Gresley)

Pulaskite. A variety of syenite of somewhat trachytic habit, composed of essential orthoclase and some nephelite, or sodalite, diopside, and perhaps hornblende. (LaForge)

Pulgada (Sp.). Inch; *P. de minero*, a miner's inch equal to 74 or 75 cubic meters in 24 hours. (Halse)

Pull. 1. (Eng.) To subside or settle. *See also* Creep, 1. 2. The drag in ventilation of mines. (Gresley) 3. To draw or remove the coal pillars, or pillars of ore.

Puller-off (Mid.). A man who takes the loaded trams off the cages at the surface, or who withdraws the empties from them at the bottom. (Gresley)

Pulley. A sheave or wheel with a grooved rim, over which a winding rope passes at the top of the headframe. (Gresley)

Pulley brae (Scot.). A self-acting incline. (Barrowman)

Pulley frame. A gallows frame or head frame. (Raymond)

Pulleying (Eng.). Overwinding or drawing up a cage or bucket into the pulley frame. (Gresley)

Pulley stone. The common name for a hollow cast, or mold, of the joints and stems of encrinites. (Oldham)

Pulling back (Eng.). *See* Posting.

Pulling-over rope (Eng.). A short light hemp rope for drawing the ends of winding ropes over the pulleys. (Gresley)

Pulling pillars. The common expression used for mining the coal in the pillars of a mine; robbing pillars (Steel). *See also* Pulling stumps.

Pulling stumps. The process of taking out the pillars of a coal mine (Ada Coal Co. v. Linville, 153 S. W. Rept., p. 21). *See also* Pulling pillars.

Pull-up stakes (Cal.). To strike camp. To remove from one place to another, as in search of new diggings, etc. (Hanks)

Pulmotor. A mechanical device designed to perform artificial respiration in cases of asphyxia, electric shock, drowning, etc., by exhausting the lungs and filling them with oxygen-enriched air.

Pulp (Pac.). Pulverized ore mixed with water; also applied to dry-crushed ore. (Raymond)

Pulp-assay (Pac.). The assay of samples taken from the pulp after or during crushing. (Raymond)

Pulp stone. A very large grindstone employed in pulp mills for crushing or grinding wood into fiber. (Pike)

Pulsator. 1. A machine that beats or throbs in working, as a pulsometer pump. 2. A jigger or shaking machine used in diamond mining. 3. A device that sends puffs of compressed air into either end alternately of a kind of valveless rock drill. (Webster)
4. A motor-driven air compressor that supplies compressed air to an electric channeler. It receives the exhaust from the channeling machine cylinder and thus utilizes the pressure of the exhaust. (Bowles)

Pulsator jig. A jig employing a fixed sieve and successive pulsions of rising water from a revolving plug cock with scarcely any downward return and suction. It has large capacity, occupies small space, and consumes a comparatively small amount of power. (R. H. Richards)

Pulsometer. A kind of pump, with valves, for raising water by steam, partly by atmospheric pressure, and partly by the direct action of the steam on the water, without the intervention of a piston. Also called a Vacuum pump. (Webster)

Pulverize. To reduce or be reduced to a fine powder or dust as by beating, grinding, or the like. (Webster)

Pulverulent. That which may easily be reduced to powder (Weed). Said of certain ores.

Pumice. An excessively cellular, glassy lava, generally of the composition of rhyolite (Kemp). A sort of volcanic froth. Its color is generally whitish or light gray. It is very light and will float on water. Pumice stone.

Pump. 1. Any of numerous devices or machines for raising, transferring, or compressing liquids or gases by suction or pressure or both. 2. To work or raise water, etc., with a pump. (Webster)

Pumpage. The amount raised by pumping; as, the *pumpage* of an oil-well. (Standard)

Pump bob. The balance weight used to bring up the plunger in a Cornish pumping-engine. (Standard)

Pump bucket. A packed piston having an aperture, in its center, covered by a clack or valve opening upwards. (Duryee)

Pump chamber. An underground pumping station.

Pumper. 1. (Scot.) A person who works a hand pump. (Barrowman) 2. An instrument or machine used in pumping. 3. (U. S.) An oil well that has to be pumped. (Webster)

Pump fist (Eng.). The lower end of a plunger case of a pump. (Gresley)

Pumpherston shale. A Scottish oil shale which yields 16 to 22 gallons of crude oil per ton, together with 50 to 60 pounds of ammonium sulphate. (Bacon)

Pumping. 1. The operation of filling a sludge pump by an up-and-down motion of the rods or rope. Also called Pumping the sludger. (Gresley) 2. The act of raising or transferring a liquid or gas by means of a pump.

Pumping engine. An engine used for pumping, especially a steam engine and pump combined for raising water. (Webster)

Pumping jack. A device over a deep well for operating the pump by belt power. (Webster)

Pumping shaft. The shaft containing the pumping machinery of a mine. (Standard)

Pump kettle. A convex perforated diaphragm fixed at the bottom of a pump tube to prevent the entrance of foreign matter; a strainer. (Century)

Pump ring. A flat-iron ring that, when lapped with tarred baize or coarse cloth, secures the joints of water columns. (C. and M. M. P.)

Pump rod. The rod or system of rods (usually heavy beams) connecting the steam engine at the surface, or at a higher level, with the pump piston below. (*See* Balance-bob. (Raymond)

Pump-rod plates (Scot.). Spear plates; strips or plates of iron bolted to wooden pump-rods at the joints for the purpose of making the connection. (Barrowman)

Pump slope. A slope in which pumps are operated. (Chance)

Pump sollar. A platform to give access to the door-piece and working parts of a pump. (Standard)

Pump station; Pump room. An enlargement made in the shaft, slope, or entry to receive the pump. (Steel)

Pump stock (Lanc.). *See* Pump tree.

Pump tree (Eng.). A cast-iron (wrought-iron was formerly used) pipe, generally 9 feet in length, of which the water column or set is formed. (Gresley)

Punch. 1. A tool (ram) for knocking out timbers in coal workings. (Standard)
2. Same as leg or prop. Called also Puncheon. *See* Punch prop.

Punch-and-thirl (So. Staff.). A kind of pillar-and-stall system of mining coal. (Gresley)

Puncheon. 1. (Mid.) A synonym for Prop. 2. A pointed steel tool used in marble cutting. (Webster)

Puncher. *See* Punching machine, 2.

Punching machine. 1. A machine tool used for punching holes in metals or other material. (Webster)
2. A pick machine used to undermine or shear coal by heavy blows of sharp steel points attached to a piston driven by compressed air. (Steel)

Punch prop. A short timber prop for supporting coal in holing or undercutting; a sprag. (Standard)

Pungernite. A variety of ozocerite, found in North Russia. (Mitzakis)

Puño (Mex.). Handful. (Dwight)

Punta. 1. (Mex.) Small cord for tying ore sacks. (Dwight)
2. A sharp end of an instrument, as the point of a pick. 3. *Puntas* (Peru), a crew of miners who work for 12 hours. 4. A headland or promontory. (Halse)

Puntal (Mex.). 1. Prop or post. 2. The end piece of a shaft frame. (Halse)

Puntero (Sp.). 1. A chisel used by stone cutters. 2. A gad. (Halse)

Punterola (Sp.). A short pick, chisel, or wedge used with a handle. (Halse)

Puntista (Mex.). The laborer who knocks down all loose rock in the face or stope, leaving it ready for the next shift. (Dwight)

Punto (Sp.). A point; *P. de partida*, the point of discovery of a vein. The point of commencement in measuring a claim. (Halse)

Punty. In glass-blowing, a pontil. Called also Punty rod.

Puppet. *See* Poppet.

Puppet head (Eng.). *See* Poppet head.

Puppet valve. A valve that, in opening, is lifted bodily from its seat by its spindle instead of being hinged at one side. (Century)

Puppy. An underground set of pumps. (Davies)

Purbeck beds (Eng.). A fresh-water deposit consisting of various kinds of limestone and marls, immediately above the Portland beds. (Humble)

Purgar (Mex.). To blow off a boiler. (Dwight)

Purple blende. An old synonym for Kermesite. (Chester)

Purple copper ore. Same as Bornite.

Purple of Cassius. A purple precipitate formed by adding stannous chloride to chloride of gold. Used in painting and staining porcelain and glass.

Purser (Corn.). A paymaster and accountant at a mine. (Skinner)

Puruña (Peru). A shallow, earthen plate about 7 inches in diameter, used for panning small samples of ore. (Pfordte)

Pusher. A person regularly employed to push mine cars from one place to another. He usually assists the diggers to push cars up into steep rooms (Steel). *See also* Trammer and Putter.

Pushing jack. An implement for moving a large and heavy object, such as a railroad car, for a short distance. (Century) *See* Pinch, 3.

Push hole. A hole through which glass is introduced to a flattening furnace. (Standard)

Push moraine; Shoved moraine. A kind of terminal moraine consisting of material pushed along and piled into a marginal ridge. (Standard)

Put. 1. (Newc.) To convey coal from the working face to the tramway. This is usually done by young men called putters. (Raymond)
2. (Som.) A box having a capacity of from 3 to 6 cwt. of coal, used in thin seams. (Gresley)

Putter. 1. (Eng.) A man or boy who conveys coal from the working place to the tramway (Raymond). Same as Haulier, Trammer, and Drawer, 1.

Putti. A gold-washing tray used in Madras. (Lock)

Putting (Eng.). Same as hauling. (Gresley)

Putting ponies (Eng.). Ponies 10 or 11 hands high used in mines for hauling mine cars.

Put-to-stand (So. Staff.). Stoppage of coal mining on account of fire-stink. (Gresley)

Putty. 1. *See* Iron putty.
2. Tin oxide, sometimes mixed with lead oxide, used for polishing glass, metals, jewelry, etc. Called also Jewelers' putty; Putty powder. 3. In ceramics, glazing-slip. (Standard)

Putty powder. Crude oxide of tin, used for giving opaque whiteness to enamels or for grinding glass. (Raymond) *See* Putty, 2.

Putty stones. Soft pieces of decomposed rock found in placer deposits. (Power)

Put work. *See* Tutwork.

Putzen (Ger.). Small irregularly deposited spots or bunches of ore. (Davies)

Putz oil. A light distillate from Baku petroleum with a specific gravity of 0.750 to 0.770. It is used as a cleansing oil. (Bacon)

Puy. A conical hill of volcanic origin, especially in Auvergne, France, either (1) of volcanic ash or scoria with or without intervening sedimentary strata, (2) sedimentary or granitic with a cap of basalt, or (3) sedimentary, with or without volcanic ash, traversed by a dike of basalt or trachyte. (Standard)

Puzzolana; Puzzolano; Puzzolite. Same as Pozzuolana.

Pychite. A columnar variety of topaz. (Standard)

Pycnite. A variety of topaz, occurring in columnar aggregations. (Chester)

Pycnometer. A small bottle for determining the specific gravity of grains or small fragments. (Dana)

Pycnotrope. A compact mineral near serpentine; probably an alteration product. (Chester)

Pyramid. 1. In crystallography, strictly, (*a*) in the tetragonal, hexagonal, and and orthorhombic systems, an open form of three, four, six, eight, or twelve faces which meet the vertical axis in a common point; (*b*) in the monoclinic and triclinic systems, an open form of one, two, or four faces which cut all three axes. 2. As gen-

erally used, a form enclosed by all the faces answering the above description whose intercepts have the same ratio; hence, a double-ended pyramid having both ends alike: better called a bipyramid. (La Forge)

Pyramdial garnet. Idocrase (Power). A variety of Vesuvianite.

Pyramidal stoping. *See* Rill stoping.

Pyrargyrite. Dark, ruby silver. Silver-antimony sulphide, $3Ag_2S.Sb_2S_3$. Contains 59.9 per cent silver when pure, but analyses show from 57 to 60.9 per cent. (U. S. Geol. Surv.)

Pyrene. A hydrocarbon, $C_{16}H_{10}$, obtained from coal tar. (Bacon)

Pyrite. A hard, heavy, shiny, yellow mineral, FeS_2, generally in cubic crystals. It may be distinguished from chalcopyrite by being of a paler yellow, harder and giving a black powder, whereas chalcopyrite gives a yellow powder. Marcasite has the same composition, but is white and crystallizes differently. (Roy. Com.) Isometrically crystallized iron disulphide, FeS_2. Contains 46.6 per cent iron. (U. S. Geol. Surv.) Also called Iron pyrites, Fool's gold, Iron sulphide.

Pyrites. The term *pyrites*, as frequently used, literally means a mineral that strikes fire. It is applied to any of a number of metallic-looking sulphides, of which iron pyrites (pyrite) is the commonest; as copper pyrites (chalcopyrite), tin pyrites (stannite), etc. The term *pyrite* applies only to the iron disulphide, FeS_2.

Pyritic. Of, pertaining to, resembling, or having the properties of pyrite. (Standard)

Pyritic smelting. The fusion of sulphide ores by the heat generated by their own oxidation, and without the aid of any extraneous heat, such as carbonaceous fuel, the electric arc, etc. (Peters', p. 372.)

Pyritiferous. Containing or producing pyrite. (Webster)

Pyritization. Conversion into pyrite either by simple replacement or by alteration, or both. (Standard)

Pyritize. To convert into pyrite. (Webster)

Pyritohedron. The pentagonal dodecahedron. (Webster)

Pyritology. 1. The science of blowpipe analysis. (Webster)
2. Facts or information relating to pyrite. (Century)

Pyrobitumen. A dark-colored, solid, infusible, natural-hydrocarbon complex, often associated with a mineral matrix, insoluble in water, and relatively insoluble in carbon disulphide, benzol, etc. (Bacon)

Pyrobituminous. Yielding bituminous products on heating, as coal. (Webster)

Pyrochlore. Chiefly a niobate of the cerium metals, calcium and other bases, with also titanium and thorium. Probably essentially a metaniobate with a titanate, $RNb_2O_6R(Ti,Th)O_3$; fluorine is also present. (Dana)

Pyrochroite. Manganese hydrate, a mineral occurring in foliated forms with pearly luster, resembling brucite. It is white when fresh, but changes to bronze and black upon exposure. (Century)

Pyrocalstic. Of igneous origin and fragmental texture: said of some rocks, as tuff, agglomerate, volcanic braccia, etc. (La Forge)

Pyrocrystalline. Crystallized from a molten magma. (Webster)

Pyrogen. An obsolete term for electricity. (Webster)

Pyrogenous. Formed by fusion; igneous; as, *pyrogenous* rocks. (Standard)

Pyrognostics. The characters of a mineral observed by the use of the blowpipe, as degrees of fusibility, flame coloration, etc. (Webster)

Pyrolite. An explosive resembling gunpowder in composition. (Webster)

Pyrolites. A term employed by M. E. Wadsworth to comprise all mineral refractory or fire-resisting materials. (Power)

Pyrolusite. Black oxide of manganese. Manganese dioxide, MnO. Contains 63.2 per cent manganese. (U. S. Geol. Surv.)

Pyromagnetic. Pertaining to, produced by, or acting by the combined agency of, heat and magnetism. (Webster)

Pyromeride. A name given by the Abbe Haüy to the orbicular diorite or corsite of Corsica. The word means "partly fusible," and refers to the properties of the two constituent minerals, of which the one, quartz, was infusible, and the other, the feldspar, could be melted. (Kemp)

Pyrometallurgy. Metallurgy depending on the action of heat, as in smelting.

Pyrometamorphism. Metamorphism produced by heat: contrasted with Hydrometamorphism. (Standard)

Pyrometer. 1. An instrument for measuring the expansion of solid bodies by heat. 2. Any instrument for measuring degrees of heat, especially above those indicated by the mercurial thermometer. (Webster)

Pyrometer cone. One of a series of small cones of different substances forming a scale of fusing points, and used in finding approximately the temperature of kilns, etc. (Webster)

Pyrometry. The art of measuring degrees of heat; the art of using a pyrometer. (Webster)

Pyromorphite; Green lead-ore. Chlorophosphate of lead, $3Pb_3P_2O_8.PbCl_2$. (U. S. Geol. Surv.)

Pyromorphous. Crystallizing from a molten state. (Webster)

Pyronaphtha. A heavy illuminating oil obtained from Russian petroleum. It has a light-yellow color and a specific gravity of 0.840 to 0.860. (Bacon)

Pyronome. An explosive containing the ingredients of gunpowder, and also antimony, potassium chlorate and chromate, and flour. (Webster)

Pyrope. Magnesium-aluminum garnet, $3MgO.Al_2O_3.3SiO_2$. Color deep red to nearly black. Used as a gem when transparent. (U. S. Geol. Surv.)

Pyrophane. A variety of opal that by the absorption of melted wax is made translucent when hot, but becomes opaque again on cooling. (Standard)

Pyrophyllite; Pencilstone. A hydrous aluminum silicate, $H_2O.Al_2O_3.4SiO_2$. Resembles talc in color, feel, luster, and structure. Used for slate pencils and for the "talc" or "talcum" of commerce. (U. S. Geol. Surv.)

Pyrophysalite. Same as Physalite. A coarse, nearly opaque, variety of topaz. (Dana)

Pyropissite. An earthy, friable, coaly substance, of a grayish-brown color and having a specific gravity of 0.493 to 0.522; it melts easily to a pitch-like mass and affords 62 per cent of paraffin on dry distillation. (Bacon)

Pyroretin. A resin that occurs in brown coal, near Aussig in Bohemia; it is brittle, of a brownish-black color, and has a specific gravity of 1.05 to 1.18. (Bacon)

Pyroschist. A schist or shale containing sufficient hydrocarbons to burn with a bright flame, or one yielding volatile hydrocarbon or inflammable gas when heated. (Century)

Pyrosphere. *See* Barysphere.

Pyrostat. A thermostat, especially one for measuring high temperature. (Webster)

Pyrostibite. An old synonym for Kermesite. (Chester)

Pyrostilpnite. A hyacinth-red variety of pyrargyrite, $Ag_2S.Sb_2S_3$. (Dana)

Pyroxene. A metasilicate, chiefly of calcium and magnesium, also iron, less often manganese and zinc. There are a number of varieties. *See* Diopside, Hedenbergite, Augite, (Dana). The name of the mineral is often prefixed to the name of the rocks that contain it.

Pyroxenite. A granular, igneous rock, consisting essentially of pyroxene, with or without hornblende, spinel, and iron oxides, and with little or no feldspar or olivine. (La Forge)

Pyrrhotite; Magnetic-pyrites. A variable iron sulphide, Fe_nS_{n+1}. Many pyrrhotites contain nickel and are mined as nickel ores (U. S. Geol. Surv.). It has a reddish-brown color, and is magnetic, hence magnetic pyrites. (Dana)

Q.

Quadrant. 1. The quarter of a circle; an arc of 90°. 2. Any of the four parts into which a plane is divided by rectangular coordinate axes lying in that plane. 3. An instrument for measuring altitudes. 4. A device resembling a bell crank for converting the horizontal reciprocating motion of an engine piston rod into the vertical up-and-down movement of a pump rod. 5. A unit of length equal to 10,000 kilometers. (Webster)

Quadrel. 1. A square brick, tile, or stone; especially, a whitish air-dried brick made of chalky earth. 2. (Prov. Eng.) A square of peat or turf. (Standard)

Quadrune. A gritstone with a calcareous cement. (Standard)

Quagmire. Soft, wet, miry land, that shakes or yields under the foot. (Webster)

Quaking bog. A bog that shakes under foot, consisting of growing peat saturated with water. (Standard)

Qualitative analysis. The process, in chemistry, of finding how many and what elements are present. (Standard)

Quantitative analysis. The process, in chemistry, of finding the bulk or amount of each element present. Called also Elementary analysis (Standard). Both the volumetric and gravimetric methods are included in this process.

Quaquaversal. Dipping outward in all directions from a central point: as a dome in stratified rocks. (La Forge)

Quar; Cliff quar (Forest of Dean). An indurated clay. *See* Bind, 1. (Gresley)

Quarey lode. *See* Quarry lode.

Quarl; Quarle. A large brick or tile; especially a curved firebrick used to support melting pots, retort covers, or the like. (Webster)

Quarman. An obsolete term for a quarryman. (Standard)

Quarpit. An obsolete term for a quarry. (Standard)

Quarrel. 1. A stone quarry. 2. Materials from a quarry. An obsolete term. (Standard)

Quarrier. A workman in a stone quarry; a quarryman. (Standard)

Quarry. 1. An open or surface working, usually for the extraction of building-stone, as slate, limestone, etc. (Raymond)
2. (Eng.) An underground excavation formed in the roof or fault, for the purpose of obtaining material for pack walls. (Gresley)
Note: In its widest sense the term *mines* includes *quarries*, and has been sometimes so construed by the courts; but when the distinction is drawn, *mine* denotes underground workings and *quarry* denotes superficial workings. Open workings for iron ore, clay, coal, etc., are called *banks* or *pits* rather than quarries (Webster), the latter being defined as in 1 above.

Quarry bar. A horizontal bar supported at each end by legs and used to carry machine drills. (Gillette, p. 97)

Quarry face. The freshly split face of ashlar, squared off for the joints only, as it comes from the quarry, and used especially for massive work. (Webster)

Quarrying-machine. Any machine by which to drill holes or cut channels in native rock; a gang-drill, rock-drill, or tunneling machine, but most commonly a small form of locomotive, bearing rock-drilling mechanism, and operating on a track laid temporarily along or opposite the ledge to be cut. (Standard)

Quarry lode (Corn.). A lode or stratum that breaks in large hard blocks, by reason of joint planes. (Pryce)

Quarry machine. *See* Quarrying machine.

Quarryman. A man engaged in quarrying stones; a quarrier. (Webster)

Quarrymaster (Scot.). The owner of a quarry. (Barrowman)

Quarry-stone bond. Rubble work. (Webster)

Quarry water. Water that fills the pore spaces of a rock as it lies in its original bed (Bowles). *See* Ground-water.

Quartation. The separation of gold from silver by dissolving out the latter with nitric acid. It requires not less than ¾ silver in the alloy, whence the name, which is also applied to the alloying of gold with silver, if necessary, to prepare it for this method of parting. (Raymond)

Quarter coal (York.). Same as Colliers' coal.

Quarter cord (Derb.). A cord or chain one-quarter of a mere in length (about 7½ yards), used in measuring mineral ground. (Mander)

Quartering. A method of reducing an ore sample by discarding alternate quarters after the ore has been spread on the floor. The operation is repeated until a large sample has been reduced to a few pounds. (Hofman, p. 48)

Quartering-in (Lanc.). A plan of building or putting together tubbing plates from the top downward, the rings and segments being bolted together as the work of excavation proceeds. (Gresley)

Quartering-way (Corn.). A quarry term to designate a direction in which a rock cleaves with moderate facility. (Greenwell, p. 80)

Quarternary. The later of the two geologic periods comprised in the Cenozoic era, in the classification generally used. Also the deposits

formed during that period. (It comprises all geologic time and deposits from the end of the Tertiary until and including the present. It has also been called Post-Tertiary and Pleistocene, but Pleistocene is now generally restricted to the earlier part of the Quarternary.) (La Forge)

Quarternary steel. An alloy steel that contains two alloying elements, such as chromium-vanadium steel (Hibbard). It contains two elements plus the iron and carbon, hence quarternary.

Quarter line (Western U. S.). The original survey-line by which a section of Government land is divided into four parts. (Standard)

Quarter-point veins (No. of Eng.). Small veins having an intermediate bearing between strike and cross veins. (Power)

Quarter post (Western U. S.). A halfway post between two section-corners on the same line of a surveyed section of land. (Standard)

Quarter section. In the Government system of land surveying in the United States and Canada, a tract of land half a mile square and containing 160 acres. (Webster)

Quartz. 1. Crystallized silicon dioxide, SiO_2. *Amethyst* is a variety of the well-known amethystine color. *Aventurine* is a quartz spangled with scales of mica, hematite, or other minerals. *False topaz* or *citrine* is a yellow quartz. *Rock crystal* is a watery clear variety. *Rose quartz* is a pink variety. *Rutilated quartz* contains needles of rutile. *Smoky quartz* is a brownish variety, sometimes called *cairngorm*. *Tiger-eye* is crocidolite (an asbestos-like mineral) replaced by quartz and iron oxide and having a chatoyant effect. (U. S. Geol. Surv.)
The name of the mineral is prefixed to the names of many rocks that contain it, as quartz-porphyry, quartz-diorite. (Kemp)
2. (Pac.) Any hard, gold or silver ore, as distinguished from gravel or earth. Hence, quartz-mining, as distinguished from hydraulic mining, etc. (Raymond)

Quartz battery (Aust.). A quartz-mill. (Standard)

Quartz boil. An outcrop of a quartz reef. (Duryee)

Quartz bucket. A bucket for hoisting quartz. (C. and M. M. P.)

Quartz claim. In the United States, a mining claim containing ore in veins or lodes, as contrasted with placer claims, carrying mineral, usually gold, in alluvium.

Quartz drift. Any loose rock material containing quartz fragments as a prominent constituent. *See* Drift, 6. (Century). A mine opening in a quartz-bearing rock.

Quartzic. Same as Quartziferous.

Quartziferous. Consisting chiefly of quartz. (Millford)

Quartzite. A metamorphosed quartz sandstone, formed by the deposition of secondary silicia between the original grains, so that the rock is more firmly cemented and less porous than before and tends to break across the grains (La Forge). Not to be used for vein quartz (Kemp). Called also Quartz-rock, Granular quartz.

Quartzitic. Of, pertaining to, or consisting of quartzite or quartz. (Century)

Quartz liquefier. An apparatus in which, by the action of an alkali and high-pressure steam, gold-bearing quartz is converted into a soluble silicate from which the gold may be separated by washing. (Standard)

Quartz mill. A machine or establishment for pulverizing quartz ore, in order that the gold or silver it contains may be separated by chemical means (Standard). A stamp mill.

Quartz mine. A mine in which the deposits of ore are found in veins or fissures in the rocks forming the earth's crust (Duryee). *See* Quartz mining. Usually applied to lode gold mines, but not to placers.

Quartz mining. Mining on veins or ore bodies in place, as distinguished from surface digging or washing (alluvial or placer mining); underground mining in rock; so called because quartz is the chief mineral associated with gold in such deposits. (Webster)

Quartz monzonite. An igneous rock of granular texture containing quartz with orthoclase and plagioclase in about equal proportions. (Ries)

Quartzoid. A crystal having the form of two six-sided pyramids base to base. (Standard)

Quartzose. Containing quartz as a principal ingredient. (Raymond)

Quartz porphyry. Any porphyritic rock in which the quartz occurs as phenocrysts.

Quartz reef. A lode or vein of quartz (Duryee). *See also* Reef.

Quartz reefer (Aust.). One engaged in mining for gold in a quartz reef or vein. (Webster)

Quartz rock. *See* Quartzite.

Quartz sinter. Siliceous sinter. (Century)

Quartz vein. A deposit of quartz in the form of a vein. Auriferous veins are often called quartz veins, and mining for gold in the rock is called quartz mining. (Century)

Quartz wedge. In mineralogy, a wedge-shaped piece of quartz used in optical work. (A. F. Rogers)

Quebec City series. Same as Quebec group. (Standard)

Quebec group. A series of strata near Quebec, Canada, formerly supposed to be intermediate in age between the Calciferous and the Chazy, but now known to include beds from the Pre-Cambrian to the lower Silurian. (Standard)

Quebrada (Sp.). 1. A valley; a ravine. 2. A fissure or break in stratified rocks. 3. Broken or uneven ground. 4. A stream. (Halse)

Quebrador (Mex.). 1. An ore breaker or cobber. 2. A sledge used in cobbing. (Halse)

Quebrar (Sp.). To cob, break or crush ore. (Halse)

Quebrazón de veta (Mex.). A break in a vein. (Dwight)

Quebrith. An obsolete term for sulphur. (Standard)

Queen's metal (Corn.). An alloy consisting of nine parts of tin and one each of antimony, bismuth and lead. (Crofutt)

Queen's ware. Glazed English earthenware of a cream color; cream-colored wedgewood ware. (Webster)

Queen's yellow. The yellow subsulphate of mercury. (Century)

Queer (Prov. Eng.). A fissure, joint, or small cavity, as in a rock or vein of quartz (Standard). Also spelled Quere, Queere and Qweear.

Queer creek. A fine-grained sandstone found in Ohio and used in the manufacture of inexpensive sharpening stones. (Pike)

Queery (Corn.). When the lode or rock on which the miner is driving partakes of the character of quarry stone, *viz.*, in detached lumps by natural divisions, it is called *queery ground*, and is frequently worked with crowbars and levers instead of being blasted or gadded. A "queer of ground" is a detached rock (Hunt). Also called Quarry lode. *See also* Queer.

Quema; Queme (Mex.). 1. A roast of ore; the process of roasting ore; retorting amalgam. (Dwight)
2. Calcining of mercury ores in clay retorts. 3. *Metal de quema* (Peru), a sulphide ore. (Halse)

Quemadero (Mex.). A burning place; a retorting furnace for silver or gold amalgam. (Dwight)

Quemado (Mex.). Literally, burnt stuff. Any dark, cindery looking mineral encountered in a vein or mineral deposit (generally manganiferous). (Dwight)

Quemar (Sp.). To calcine or roast ore; *Q. piedra*, to heat a stone and then drop it in water in order to break it. (Halse)

Quemazón. 1. (Peru) Silver ore containing black peroxide of manganese.
2. (Mex.) An outcrop. (Dwight)

Quench. 1. To cool suddenly, as heated steel, in tempering. (Webster)
2. To produce a crust or succession of crusts on (molten metal), each crust being removed as it is formed. (Standard)

Quenching. Specially, in copper-refining or the like, the act of cooling the surface of molten metal, and causing the formation of rosettes in the crust, by pouring water into the crucible. (Standard)

Quenching pit. A pit filled with water in which graphite, residue of iron, and slag from hot-metal ladles is granulated so that it will pass through bin doors when it is recharged into furnace. (Willcox)

Quenching tub. A tub of water in which to cool, harden, or temper iron or steel. (Standard)

Quergestein (Ger.). Strata crossed at right angles by a lode. (Davies)

Quesos. 1. (Peru). Pressed amalgam cakes. (Pfordte)
2. (Mex.) In the *patio* process small cakes of silver resulting from smelting sulphides with litharge in small clay furnaces. (Halse)

Quick. 1. Applied to a productive vein as distinguished from dead or barren. An ore or pay streak is said to be quickening when the associated minerals indicate richer mineral ahead. 2. (Pac.) A local term for quicksilver. (Raymond)
3. Soft water-bearing strata, such as running sand. 4. (So. Staff.) Solid or ungotten coal forming the roof of a roadway in a "thick coal" colliery. 5. Blasting powder is said to be "quick" when it burns or goes off very rapidly. (Gresley)
6. In electroplating, to wash with quicksilver or other substance that insures the adhesion of a coating of silver. (Standard)

Quickening liquid. A solution of a salt of mercury, usually the nitrate or cyanide, in which the articles to be plated with silver are plunged before being put into the silver bath. A thin film of mercury is formed which insures a perfect adhesion of the silver coating (Webster). *See also* Quick, 6.

Quick ground. Ground in a loose, incoherent state. (Raymond)

Quicklime. Calcined calcium carbonate (limestone). By the addition of water it slakes and forms hydrate of calcium.

Quickness. The property of an explosive by virtue of which it exerts a sharp blow or shattering effect on the material with which it is in contact. The quickest explosive of the dynamite class is the 60 per cent. straight dynamite. Quick explosives are the ones particularly desired for mudcapping. For maximum effect for this purpose, they should be of high density and sensitiveness. (Du Pont) *See also* Quick, 5.

Quicksand. Sand which is (or becomes, upon the access of water) "quick," *i. e.*, shifting, easily movable or semi-liquid. (Raymond)

Quicksandy. Containing or abounding in quick sands. (Century)

Quicksilver. 1. A common name for mercury; one of the metallic elements, remarkable for its low melting point, being liquid down to minus 40° F. (Roy. Com.)
2. To overlay with quicksilver, or with an amalgam of quicksilver and tin. (Webster)
3. An amalgam of tin, used for the reflecting surface of mirror. (Standard)

Quicksilver cradle. A wooden box placed in a sloping position, and fixed upon rockers, in which gold-bearing gravel is washed, the gold being caught by mercury in the lower part of the cradle. (Davies)

Quicksilvering. The process of coating or treating with quicksilver. (Standard). *See* Quicksilver, 3.

Quicksilver rock (Calif.) A dark opaline or chalcedonic rock, commonly associated with cinnabar and often indicative of the presence of this quicksilver mineral. (Webster)

Quicksilver water. *See* Quickening liquid.

Quick water. A dilute solution of nitrate of mercury and gold, used in the process of water-gilding. (Century)

Quiebra (Sp.) 1. The breaking or crushing of ore by hand or machinery. 2. A fault, fracture or break in rocks. (Halse)

Quijadas (Mex.). Rock breaker; jaw plates. (Dwight)

Quijo (Sp.). Gangue, or vein rock. (Halse)

Quilatar; Aquilatar (Sp.). To assay gold or silver. (Halse)

Quilate (Sp.) 1. The degree of purity of gold or precious stones. 2. A carat. (Halse)

Quill. A slow burning fuse made formerly of the quill of a feather filled with powder. (Standard)

Quimbalete (Peru). *See* Bimbalete.

Químico (Mex.). Chemist or assayer. (Dwight)

Quintal. A denomination of weight; a hundredweight. In the metric system, 100 kilograms; in the United States and Great Britain 100 (or 112) pounds avoirdupois; in Spain 100 libras, or 46.09 kilograms; in Colombia 100 libras or 50 kilograms; in Portugal and Brazil, 58.752 kilograms (Webster). In Mexico, 46.-0246 kilograms. (Dwight)

Quintaleros (Bol.). Native lessees who treat copper ore in *quimbaletes*. (Halse)

Quinto (Sp.). Mining tribute from American colonies to the King of Spain (Dwight). As originally levied by Ferdinand and Isabella it amounted to 20 per cent, but was later reduced.

Quitapepena (Mex.). A guard who searches the miners as they come out of the mine to prevent stolen ore being taken from the mine. (Halse)

Quitclaim. A release or relinquishment of a claim; a deed of release. In the United States it is more than a release and is used as a simple conveyance for making a grant of lands. (Webster)

Quoiceneck (Shrop.). Grayish black clay with streaked shining surfaces. (Gresley)

Quoin. 1. The keystone or a voussoir in an arch. 2. A wedge to support and steady a stone. (Webster)
3. A large square ashlar or stone at the angle of a wall to limit the rubble and make the corner true and strong. 4. One of the four facets on the crown, on the pavilion, or on the base of a gem (Standard)

Qweear; Queere. (Corn.). A small cavity or fissure (Raymond). *See also* Queer; Queery.

R.

Rabat. Imperfectly baked potters' clay: used as a polishing material. (Standard)

Rabban (Corn.). A dry yellowish gossan. (Power)

Rabble. 1. An iron scraper serving for a rake in removing scoriæ from the surface of melted metal in a reverberatory furnace. It has generally an iron handle ten or fifteen feet in length. The iron scraper is about a foot long and from four to six inches wide (Jackson). *See* Puddling.
2. A charcoal burner's shovel. 3. A mechanical stirrer used to stir the ore charge in roasting furnaces. (Webster)

Rabbler. 1. A rabble (which *see*). 2. One who uses a rabble, as in puddling iron. 3. A scraper. (Standard)

Rabbling. Stirring a charge of ore in a reverberatory furnace with a specially designed iron rod. (C. and M. M. P.)

Rabbling tool. A rabble of simple construction for use by hand (Standard). *See* Rabble, 1. Also called Rabble rake.

Rabot. A hardwood block used in polishing marble. (Standard)

Race. 1. (Scot.) *See* Journey, 1. 2. (Eng.) The space in which a winding drum revolves. (Gresley)
3. To scrape the face of a grindstone so as to make it cylindrical and abrasive. 4. A watercourse made and used for industrial purposes, as for mining. (Webster)
5. A small thread of spar or ore. (Raymond)
6. (Scot.) A set or train of hutches coupled together. (Barrowman)

Rack (Corn.). An inclined frame on which ores are washed (Whitney). A stationary buddle. Also spelled Reck.

Rackarock. An explosive consisting of about four parts of potassium chlorate to one part of nitrobenzine. (Century)

Racking. 1. The process of separating ores by washing on an inclined plane. (Davies)
2. Act of leaving an uncompleted part of a wall with bricks or stones stepped in and out, so that more may be bonded to it. (Webster)
3. Same as Ragging. (Standard)

Racking table. A table on which to wash ore slimes (Standard). *See* Rack, 1.

Rackings (Scot.). *See* Corner rackings.

Rack railroad. A cog railway, or cog tramway.

Raddle (York.). 1. Earthy hematite occurring in the coal measures. (Gresley). *See* Reddle.
2. A rabble. (Standard)

Radial dikes. A descriptive term specially used by L. V. Pirsson for those dikes that radiate outward from an eruptive center. (Kemp)

Radian. An arc of a circle equal to the radius, or the angle at the center measured by it. Its value is 57.2958+ degrees. (Webster)

Radiated. Applied to crystal aggregates that radiate from a center without producing stellar forms. (Dana)

Radiated pyrite. Marcasite. (Power)

Radiation. Emission and diffusion of rays, as of light or heat. (Webster)

Radical. An atom or element, or a group of atoms or elements, that is the chief constituent of the molecules of a given compound or that will not decompose in the ordinary chemical reactions to which a compound is liable; more specifically, a group of different atoms acting as a single element in a compound and incapable of independent existence, as NH_4 (ammonium) in NH_4Cl (ammonium chloride), or C_2H_5 (ethyl) in C_2H_5HO (ethyl hydrate or alcohol). (Standard)

Radioactive. Capable of emitting, spontaneously, rays consisting (at least in part) of material particles traveling at high velocities. (Webster)

Radiolite. A variety of natrolite, especially that from southern Norway. (Standard)

Radiometallography. The application of X-rays to the study of the internal structure of various materials, especially metals. For details *See* THE ENGINEER, London, July 25, 1919.

Radium. A metallic element, Ra, derived, through a series of intermediate elements, from uranium. It gives off helium (the α rays) and charges of niton. Successive alterations give other elements, part of which radiate β and γ rays. Radium is never found in sufficient quantity to be visible, but occurs with and only with uranium minerals. From these it is separated to obtain the radium salts of commerce. *See* Uranium. (U. S. Geol. Surv.) Atomic weight, 226.0.

Radium vermilion. A red lead coated with an organic color. (Webster)

Raedera (Sp.). 1. A semicircular rake for collecting mineral. 2. A rake used in metallurgical operations. (Halse)

Raff. The coarse ore after crushing by Cornish rolls. (C. and M. M. P.)

Raffain (Corn.). Poor ore. (Power)

Raff wheel. A revolving wheel with side buckets for elevating the raff. (C. and M. M. P.)

Raff yard (No. of Eng.). A walled-in yard on the surface, in which the smiths, wrights, carpenters, etc., work. (Gresley)

Rafter timbering. A method of mine timbering in which the timbers appear like roof-rafters. (Ihlseng)

Rag. 1. (Eng.) Any of various hard rocks used for whetstones; a hard limestone used in building; a basaltic rock, shale, etc. 2. A kind of roofing slate. 3. To break ore into lumps for sorting; to cut or dress roughly, as a grindstone. (Webster)

Rag-and-chain pump (Eng.). An early type of chain pump in which rags were tied on the chain in place of rubber or metal buttons. Used in draining coal pits. (Gresley)

Rag-burn (Corn.). To subject the product of the first dressing of tin ores to a first or partial roasting. (Raymond)

Ragging. A rough cobbing. (Raymond)

Raggling (Scot.). A channel cut in the side of a mine and covered with boarding to serve as an airway. (Barrowman)

Rag pump; Rag-wheel pump (Corn.) A chain pump. (Davies)

Ragstone. 1. Any hard, coarse-textured rock. (Power)
2. Especially, a rough, sandy, fossiliferous limestone of the Lower (Bath) Oölite in England. 3. Stone quarried in thin slabs, as for pavements. (Standard)

Rag wheel. 1. A sprocket wheel; a chain wheel. 2. A polishing wheel made of disks of cloth clamped together. (Webster)

Ragwork. Masonry built with undressed flat stones of about the thickness of a brick and having a rough exterior, hence the name. (Century)

Rail bender. A screw-press or hydraulic-press for straightening rails, or for bending them in the construction of railway curves and switches (Century). Used also in underground tram roads.

Railroad powder. An explosive consisting of assorted grains, similar to gunpowder, made in such a way that the grains are not porous, having nitroglycerin on the surface not absorbed by the grain (Du Pont). Abbreviated R. R. P.

Rail train. A train of rolls for reducing iron or steel ingots or blooms to rails. (Raymord)

Rain (Mid.). Water dropping freely from the mine roof. (Gresley)

Rainbow chalcedony (Eng.). A variety of chalcedony of thin concentric layers, which when cut across exhibit an iridescence resembling the colors of the rainbow. (Page)

Rain chamber. A chamber in which fumes, as from molten metal, may be condensed by a water shower. (Standard)

Rain channel. In geology, a miniature furrow on a rock surface carved by the rain. (Standard)

Rain print. The impression of a raindrop on recent mud, or fossil on the surface of ancient strata. (Standard)

Rain-spot slate. A mottled Lower Silurian slate of Wales. (Standard)

Raise. 1. To cause to rise, or expand upward. (Webster)
2. (Eng.) To wind coal, etc., to the surface. (Gresley)
3. To take up the floor or bottom rock in a room, gangway, or entry to increase the height for haulage.
4. A mine shaft driven from below upward; called also *Upraise*, *Rise* and *Riser* Webster). An opening, like a shaft, made in the back of a level to reach a level above. (Standard). The term is in general usage at mines in Western States. *See* Rise, 1.

Raised beach. A shelf or terrace of shingle, gravel, and sand elevated above the present level of the lake or sea in which it was formed, and indicating a change in the relative level of land and water surface. (Century)

Rait; Rate (Mid.). To split off the walls or sides of underground workings (Gresley). Called Rosh in Leicestershire.

Rajas (Mex.). Lagging (half round). (Dwight)

Rajos (Chile). Open-cast workings. (Halse)

Rake. 1. (Mid.) To smother a ventilating furnace with fuel, so that it smolders for many hours. 2. (Mid.) An iron rake with a short handle, with which fillers fill baskets or pans. 3. (Derb.) A series of beds of clay ironstone lying within a few feet or yards of one another, making a workable ironstone. (Gresley)
4. (Derb.) A fissure vein crossing the strata (Raymond). Also called Rake vein.
5. The inclination of anything from the vertical. Said of mineral veins, faults, etc.
6. *See* Race, 6.

Rake of skips (Aust.). A number of skips connected that form a set or train (Power). A trip. *See* Race, 8.

Rakers. 1. Slanting props placed at the end of a drift set to keep the timbers steady when blasts go off. (Sanders, p. 111)
2. (Eng.) Shots placed round a sumper shot. (Gresley)

Rake vein. 1. (Derb.) In lead-mining, a vertical or highly inclined vein, as distinguished from a flat vein, or pipe vein (Century). *See* Rake, 4 and 5.
2. A vein or lode cutting through the strata. (Skinner)

Raking coal (Eng.). A large lump of hard coal placed upon a fire or ventilating furnace, for the purpose of just keeping it burning, or rather smoldering, when a larger fire is not required. (Gresley)

Raking prop. An inclined prop (Raymond). *See* Rakers, 1.

Rakuware. A Japanese earthenware of the 15th or 16th century, rough and with a dark glaze. (Webster)

Raky system. A percussion drilling system designed by Engineer Raky, a Russian. Although it is at present considered a little old-fashioned, it is still in use in some parts of the Taman Peninsula and Crimea. (Mitzakis)

Ram. 1. The plunger of a pump. 2. A device for raising water. (C. and M. M. P.)
3. *See* Barney. 4. A mechanical device for pushing hot coke out of an oven. (Power)

Rama (Sp.). A branch, as a branch road; a branch vein. (Halse)

Ramal (Sp.). 1. The principal passage in a mine. 2. A branch vein. (Halse)

Ramalear (Sp.). To branch off into various divisions. (Dwight)

Ramble (Newc.). A shale bed on the top of a coal seam, which falls as the coal is removed. (Raymond)

Rammelly (Mid.). Mixed argillaceous and sandy rocks. (Gresley)

Rammelsbergite. Essentially nickel diarsenide, $NiAs_2$, like chloanthite. (Dana)

Rammer. A founder's implement for compacting material in the mold, etc. (Standard)

Ramming bar (No. of Eng.). A beater (Pryce). A tamping or stemming bar or rod.

Rana (Sp.). A railway frog. *See also* Sapo. (Halse)

Rance. 1. (Scot.) A long narrow pillar of coal. 2. A prop set against the coal face that is undermined. (Barrowman)
3. (Fr.) A dull red marble with blue and white markings, from Belgium, and sold in the United States as Belgian marble. (Webster)

Rand (Dutch). A range of hills. (Duryee). *The Rand* is a rocky gold-bearing ridge in South Africa, about 30 miles long, on which Johannesberg is situated; also the gold-mining district including this ridge. (Webster)

Randanite. A synonym for Kieselguhr. The name is used in France. (Century)

Randolph process. A modification of the series process of copper refining in which the electrodes lie horizontally, the top surface of each one acting as anode, the lower as cathode. Theoretically it has the advantage of extremely low metal losses and great purity of copper. Practically, it is difficult to right matters in a tank after a short circuit. *See* Hayden process and Smith process. (Liddell)

Random. The direction of a rake vein. (Raymond)

Random courses. Courses of masonry in which the stones are of different thicknesses, though dressed and fitted. (Standard)

Random rubble. Uncoursed rubble-work. (Standard)

Random stone. A term applied by quarrymen to quarried blocks of any dimensions. (Perkins)

Random work. Stonework laid in random courses. (Standard)

Rang (Ceylon). Gold; from *rang-welle*, golden sand. (Lock)

Range. 1. A chain of mountains or hills. 2. A belt or strip of country within which certain economic minerals are supposed to occur or run. (Roy. Com.)
3. In the Lake Superior region, a term applied to a deposit of iron ore and the associated rocks. It originated from the finding of ridges or ranges formed by the wearing of the softer rocks while the hard rocks in which the iron ore is found made ridges, or low ranges. Now the term simply means deposits of iron ore, which are all known as "ranges," even if the ground where they occur be low swamps. (Min. and Sci. Press, Aug. 28, 1915, p. 327)
4. In the public land system of the United States, a row or line of townships lying between two successive meridian lines six miles apart. The meridians which are included in each great survey are numbered in order east and west from the "principal meridian" of that survey, and the townships in the range are numbered north and south from the base line which runs east and west. (Webster)
5. (Scot.) A row, as of pillars. (Barrowman)

Range coal (Iowa). Small lump coal.

Range pole. A long wooden staff, usually painted alternately red and white at one foot intervals and used by surveyors for long sights. *See* Picket.

Range work. Ashlar masonry laid in horizontal courses of even height. (Webster)

Ranging. 1. (Scot.) Searching for minerals by means of shallow pits across the outcrops. (Barrowman)
2. (Eng.) Laying out the line of the tunnel (Simms). *See also* Alignment.

Ranging rod. *See* Range pole.

Rangoon oil. The trade-name for a semisolid or butter-like petroleum from Upper Burma, refined at one time in England. (Bacon)

Rankine's cycle. A nonreversible heat-engine cycle differing from Carnot's cycle in having no compression. The steam-engine cycle is approximately a Rankine cycle. (Webster)

Raoult's law. The principle that molecular quantities of different substances dissolved in the same amount of solvent equally depress the freezing point. It does not hold for electrolytes owing to dissociation. (Webster)

Rap. 1. To warn men in an adjoining working place, of a blast when the working places are separated by only a small pillar, by knocking on the pillar with a tool or bar. 2. To signal by knocking on a steam, water, or air pipe. 3. To test the roof by tapping it with a stick or bar.

Rap-in (Som.). To wedge down blocks of stone in underground quarries. (Gresley)

Rappage. Excess in size of a casting because the mold is larger than the pattern when the latter is unduly rapped, as with the hand, for drawing. (Standard)

Rapper. 1. A lever or hammer at the top of a shaft or inclined plane for signals from the bottom. (Raymond)
2. (Mid.) The upper end of the vertical arm of a staff used for gaging the depth of holing. (Gresley)

Rarefaction. The process or act of making rare or less dense; increase of volume, the mass remaining the same: now usually of gases; also, the state of being rarified; as the *rarefaction* of the atmosphere on a high mountain. (Standard)

Rascar (Sp.). To scratch (or search) for valuable mineral on the surface of abandoned mines. (Halse)

Raschette furnace. A shaft furnace used in lead, copper, and iron smelting and having an oblong rectangular or oval horizontal section. (Raymond)

Rash. An impure and unmerchantable coal; coal mixed with clay, slate, or other foreign substance taken from the top or bottom of the seam. (St. Louis Union Trust Co. *v.* Galloway, 193 Fed. Rept., p. 106)

Rashing. Soft scaly slate or earth beneath a coal seam, often containing much carbonaceous matter. (Steel). *See* Rash.

Rashings. *See* Wild coal.

Rasp. 1. An instrument used at oil wells for reducing size of box or collar on lost tools in preparation for the use of fishing tools. (Mitzakis)
2. A kind of coarse file. (Webster)

Raspa (Mex.). 1. That portion of the precious metal obtained by scraping the *arrastre* or the *patio* (Egleston).
2. A coarse file or rasp. (Halse)

Raspadura (Mex.). Scrapings. *See* Raspa, 1. (Egleston)

Raspando. Scraping; removing the amalgam from the arrastre by scraping. (Egleston)

Raspar (Mex.). To clean up an arrastre. (Dwight)

Raspeso (Jalisco, Mex.). Ore containing native silver. (Halse)

Rastrillo (Mex.). Rake; stirrer for moving ore in a furnace; a rabble. (Dwight)

Rastrón (Mex.). A Chilean mill. (Dwight)

Rata (Mex.). A candle boy. (Dwight)

Ratch (Prov. Eng.). A subsoil of stone and gravel mixed with clay (Standard). *See* Ratchel.

Ratchel (Eng.). Stone in small fragments or gravel; *also* gravelly subsoil (Webster). Also spelled Ratchell, Rachel, Rachen, Rachill.

Ratches (Lanc.). Lifts of 5 yards in length along a working face. (Gresley)

Ratchet drill. A hand drill in which a lever carrying at one end a drill holder is revolved by a ratchet wheel and pawl (Webster). A drill used for boring slate.

Rate. *See* Rait.

Ratholite. Same as Pectolite.

Ratio of absorption. The percentage by weight that the absorbed water bears to the dry weight of the stone. (Bowles)

Rato (Mex.). An ancient method of mining or burrowing. (Halse)

Rattle (Leic.). To work with great vigor and energy, especially in driving or shaft sinking. (Gresley)

Rattlehead (Scot.). A suction pipe. (Barrowman)

Rattle jack (Mid.). Carbonaceous shale; *also* Hoo cannel. (Gresley)

Rattler. 1. (York.) Cannel coal. (Gresley)
2. (Scot.) Inferior gas coal; sandy shale. (Barrowman)
3. A device for shaking out the cores from small castings, as a tumbling barrel. (Webster)

Rattles (Dev.). *See* Scree, 1.

Raveling. Pulling material out of the ladle furnace, or iron trough at the tap hole of a blast furnace. (Willcox)

Raw. 1. Not prepared for use by heat. (Webster)
2. In ceramics, fresh from a plastic process; unbaked. (Standard)

Raw ore. Ore that is not roasted or calcined. (C. and M. M. P.)

Raw quartz. Quartz that has undergone no treatment, such as burning or reduction, prior to being placed under the stamp heads. (Duryee)

Raya (Mex.). 1. Day's pay. 2. The time worked by miners. (Halse)

Rayado (Mex.). 1. A gold-bearing greasy quartz with iron stains in the form of bands, veins, and zones. 2. A day laborer. (Halse)

Rayador (Mex.) Timekeeper. (Dwight)

Rayar (Mex.). To pay off. (Dwight)

Rayarse (Mex.). To register after work (done) in the mine. (Dwight)

Raywork. A kind of rubble work; in the United States, any rubble work of thin and small stones. (Webster)

Razor back. A sharp narrow ridge. (Webster)

Razor saw. A narrow saw used in excavating limestone. (Webster)

Razor stone. *See* Novaculite.

Reacher. A slim mine-prop reaching from one wall to the other. (Ihlseng)

Reaction. The action of one chemical substance upon another accompanied by the formation of a new substance.

Reaction process. *See* Roasting and reaction process. (Raymond)

Reaction-rims. A term mostly used in microscopic work, for the curious rims of hypersthene, garnet, hornblende, biotite, magnetite, and perhaps other minerals, that surround grains of magnetite or of ferromagnesian silfcates, wherever, as in many gabbros, they come next to feldspar. They are supposed to be produced by the reaction of these minerals on each other, probably in the crystallization of the rock. (Kemp)

Reagent. Any substance which, by reason of its capacity for taking part in certain reactions, is used in detecting, examining, or measuring other substances, in preparing material, etc. (Webster)

Real (Sp.). 1. A Mexican mining camp. 2. Royal. 3. A Spanish coin. 4. *R. hacienda*, royal treasury. 5. *R. de minas*, a town having mines in its vicinity. (Dwight)

Realgar. Arsenic monosulphide, AsS. Contains 70.1 per cent elemental arsenic. (U. S. Geol. Surv.)

Realito (Sp.). A small mining center. (Lucas)

Reamer. 1. A tool for enlarging a borehole. (Raymond)
2. A kind of chisel for cutting two V-shaped grooves from a round blasthole in the line of the desired rift (Webster). *See* Reaming, 2.

Reaming. 1. Enlarging the diameter of a bore hole. (C. and M. M. P.)
2. A quarryman's term for the process of cutting grooves on opposite sides of drill holes in order to promote straight splitting of a stone (Bowles). *See also* Reamer, 2.

Rearer (No. Staff.). *See* Edge coal.

Rearer method of working inclined seams. *See* Bord-and-pillar method.

Reata (Mex.). Light rope. (Dwight)

Réaumur. Designating the Réaumur thermometer scale where 0° is the freezing point of water and 80° the boiling point. To convert Réaumur to Centigrade, multiply the former by 1.25. To convert Réaumur to Fahrenheit, multiply the former by 2.25 and add 32°. (C. and M. M. P.)

Réaumur porcelain. A devitrified glass, made in 1739 by Réaumur in St. Cloud, of the nature of artificial soft porcelain. (Standard)

Rebajo (Sp.). 1. Working out or mining ore deposits; *R. del cielo*, overhand stoping. 2. Underhand stoping; *R. lateral*, stoping wide veins. 3. *Rebaje* (Mex.) A winze or staple. (Halse)

Rebosadero (Sp.). 1. An outcrop; the crest of a lode. 2. An irregular deposit or pocket. 3. (Peru) A gold placer. (Halse)

Rebosador (Peru). River gold-placers. (Dwight)

Rebotalleros (Sp.). Persons who search for ore in waste heaps or waste dumps. (Rockwell)

Recalescence. A glowing again; specifically, in physics, a phenomenon peculiar to heated iron or steel of glowing more brightly when certain temperatures are reached in the process of gradual cooling from a state of high incandescence; supposed to be due to a change of molecular structure. At such temperatures magnetic and other properties of the iron also suddenly change. (Standard)

Recarburize. To carburize again; specifically, to restore to (steel) after decarburization. Called also Recarbonize. (Standard)

Recast. To form anew by running, as molten metal, into a mold; cast again; as, to *recast* a cracked bell. (Standard)

Receiving clack (Scot.). The bottom clack or valve in a pump set. (Barrowman)

Receiving rods (Eng.). Auxiliary cage guides at insets and at head frames. (Gresley)

Recemented glacier. A glacier formed by recompacted ice which has fallen down a cliff from a higher glacier. (Century)

Recent. The later of the two geologic epochs comprised in the Quarternary period, in the classification generally used; same as Holocene. Also the deposits formed during that epoch. (The Holocene, or Recent, comprises all geologic time and deposits from the close of the Pleistocene or Glacial epoch until and including the present.) (La Forge)

Recepción (Sp.). A plat. (Lucas)

Recession. Going back; leaving part of the sea margin exposed as land (Lowe)

Rechazo (Colom.). A deviation of a lode due to a fault. (Halse)

Reck (Lanc.). Chips of wood and other débris hoisted with coal. (Gresley)

Reckoning day (Eng.). The day on which the workmen receive a statement of wages due, usually two days before pay day. (G. C. Greenwell)

Reclamation. The recovery of coal or ore from a mine, or part of a mine, that has been abandoned because of fire, water, or other cause.

Recodo (Sp.). Refuge hole. (Lucas)

Recoger (Mex.). To collect (Dwight). To pick ore. (Halse)

Reconcentrados (Mex.). Concentrates. (Halse)

Reconnaissance. 1. A preliminary examination or survey of a region in reference to its general geological characters. 2. An examination of a region as to its general natural features, preparatory to triangulation, etc. (Webster)

Reconnoiter. To examine by the eye; survey; especially, to make a preliminary examination of for military, surveying, or geological purposes. (Standard)

Reconocer (Sp.). To search for minerals; to prospect; to costean. (Halse)

Reconocimiento (Sp.). 1. Exploring; prospecting. 2. A survey; an inspection. 3. (Mex.). In the *patio* process, verifying the results obtained. (Halse)

Reconstructed turquoise. An imitation turquoise made of finely powdered ivory which is deposited in a solution of copper. (Century)

Record. To enter in the book of the proper officer (usually a district or county officer) the name, position, description, and date of a mining claim or location. *See* District. (Raymond)

Recorte. 1. (Sp.). Dressing the sides of a shaft. 2. (Colom.). Blankets after being washed on an inclined table, before going to the *arrastre*. (Halse)

Recover. 1. To restore a mine or a part of a mine that has been damaged by explosion, fire, water, or other cause to a working condition. 2. *See* Recovery, 1.

Recovery. 1. The proportion or percentage of coal or ore mined from the original seam or deposit. 2. A general term to designate the valuable constituents of an ore which are obtained by metallurgical treatment; as, the *recovery* was 90 per cent. Recovery is better used in connection with milling operations, while extraction is especially applicable to smelting or wet chemical methods and applies to the bullion actually obtained. "The copper, for example, in a 2 per cent ore is 'recovered' in a 35 per cent concentrate, but it is 'extracted' in a 98 per cent blister because this last is marketable as metal. The gold in a mill is 'recovered' in the cyanide solution, but it is not 'extracted' until precipitated in the zinc-box. Like the amalgam in a stamp-mill, the precipitate in a cyanide-plant is a product so concentrated and so valuable as to be marketable." (Min. and Sci. Press, July 19, 1919, p. 84.) 3. The work of reopening a mine after a disastrous fire or explosion. *See* Rescue, Recover and Reclamation.

Recovery oven. A by-product coke oven. (Webster)

Rectificación (Sp.). The rectification or correction of a mining claim. (Halse)

Rectorite. A pearly-white hydrated aluminum silicate, similar to kaolinite. (Standard)

Recuesto (Sp.). 1. Slope; declivity. 2. Dip or inclination of a vein. (Halse)

Recuperative furnace. A furnace for the recuperation or recovery of heat from the waste gases of combustion. (Ingalls, p. 356)

Red. 1. (Sp.) A net; *R. de vetas*, a network of veins; a stockwork. (Halse)
2. (Prov. Eng. The waste in coal mining; attle (Standard). *See* Redd, 3.

Red antimony. *See* Kermesite.

Red arsenic. A synonym for Realgar. (Chester)

Red-ash coal. Coal that leaves a reddish ash. (Chance)

Red bole. Same as Red ocher. (Standard)

Red chalk. Red ocher mixed with more or less clay. (Dana)

Red cobalt. An early name for erythrite. (Chester)

Red copper ore. Cuprite. (Power)

Red cross explosives. A class of high explosives characterized by the low-freezing point. (Du Pont)

Redd (Scot.). 1. To scour through, take down, or to rip. 2. To clear out pillars of coal. 3. Pit rubbish or débris. *See* Red, 2. (Gresley)

Redd bing (Scot.). A spoil heap on the surface. (Gresley)

Reddingite. A hydrous phosphate of iron and manganese resembling scorodite in form. From Redding, Connecticut. (Century)

Reddle. A variety of ocherous red iron ore used for marking, especially sheep; red ocher. Called also Red chalk (Standard). Also spelled Ruddle; Raddle.

Reddleman. A dealer in reddle or red chalk. (Century)

Reddsman (Scot.). One who works at night cleaning up and repairing roadways, etc. (Gresley)

Redevance (Fr.). A tax, duty, or rent. In mining law, a tax or duty payable to the Government or to the surface owner. (Raymond)

Red hematite. A compact columnar variety of hematite with a brownish-red to iron-black color. So called to contrast it with limonite and turgite. (Dana)

Redingtontie. A hydrous-chromium sulphate, occurring in fibrous masses having a pale-purple color. (Century)

Rédito (Mex.). Interest. (Dwight)

Red iron froth. A variety of hematite. (Power)

Red iron ore. *See* Hematite.

Red iron vitriol. Same as Botryogen. (Standard)

Red lead. Minium, Pb_3O_4 (Dana).

Red lead ore. Same as Crocolite. (Dana)

Red manganese; Red manganese ore. A term applied to both rhodonite and rhodochrosite, by reason of the reddish color of these two minerals.

Red marl. A term often applied to the New Red Sandstone. (Comstock)

Red measures (Eng.). Generally refers to the strata of Permian or Triassic age. (Gresley)

Red Metal. 1. A copper matte containing about 48 per cent copper. (Webster)
2. Any one of several alloys used in the manufacture of silverware. (Standard)

Red ocher. A red, earthy, and often impure, variety of hematite, used as a pigment (Webster). *See also* Ocher.

Red orpiment. Same as Realgar. (Standard)

Red oxide of zinc. *See* Zincite.

Red phosphorus. Same as Amorphous phosphorus.

Red rab (Corn.). Red killas, or slaty rock. (Power)

Redruthite (Corn.). Copper glance; same as Chalcocite. (Century)

Redsear. In iron-working, to break or crack when red-hot, as iron under the hammer. (Standard)

Red schorl. An old synonym for Rutile. (Chester)

Red-short. Brittle at red heat. *Compare* Cold-short. (Raymond)

Red-shortness. In metallurgy, the quality or state of being red-short. (Century)

Red silver ore. 1. Pyrargyrite: dark-red silver ore. 2. Proustite: light-red silver ore; ruby silver ore. (Dana)

Redstone. A trade name for a red sandstone. (Bowles)

Reduce. 1. To deprive of oxygen. 2. In general, to treat metallurgically for the production of metal. (Raymond)

Reduced fuel oil. Fuel oil of heavy gravity. One having a gravity of 23° Bé. (7.62 lb. per gallon) has been found to contain 19,800 B. t. u. per pound. (Bacon)

Reduced iron. Metallic iron in a fine state of division obtained by reducing ferric oxide by heating it in a current of hydrogen. Called also Iron by hydrogen, Iron-powder, Spongy iron. (Standard)

Reduced oil. Crude petroleum from which the more volatile hydrocarbons have been eliminated by partial evaporation. (Bacon)

Reducing flame. The inner cone of the blow-pipe flame, characterized by the excess of carbon or hydrocarbons of the gas, which at the high temperature present tends to combine with the oxygen of a (the) mineral brought into it. (Dana)

Reducing furnace. A furnace in which ores are reduced from oxides, or metal is separated from other substances by a non-oxidizing heat or flame; usually a shaft furnace. (Century)

Reducing scale. A form of scale used by surveyors to reduce chains and links to acres and rods by inspection, and also in mapping and drawing to different scales. (Century)

Reduction. 1. The act of removing oxygen. (George)
2. The process of separating metals from their ores. (Skinner)

Reduction furnace. A furnace for reducing ores. *See* Reducing furnace.

Reduction works. Works for reducing metals from their ores, as a Smelting works, Cyanide plant, etc.

Red vitriol. Bieberite, $CoSO_4+7H_2O$ (Power). *See* Rose vitriol.

Redwood-Baringer water finder. An instrument designed to ascertain the presence and quantity of water in a tank containing oil. (Mitzakis)

Red zinc ore. A synonym for Zincite. (Chester)

Reed. 1. (Eng.) A grass or other vegetal tube used for a train of gunpowder (fuse) in blasting (Bainbridge). *See* Spire, 1.
2. A weakness in a sedimentary rock parallel with the bedding (Bowles) *See also* Cleat, 1.

Reeder. A frame of thatched reeds used to protect china clay from rain while drying. (Standard)

Reedy coal. Coal having alternate layers of splint and bright coal. (Power)

Reef. 1. (Aust.). A lode or vein. A word introduced into mining by sailors who left their ships to participate in the rush to Ballarat and Bendigo, in 1851. To them a rock projecting above the water was a reef, and the term was therefore applied to quartz outcrops on land. 2. (So. Afr.) In the diamond mines, the barren shales, etc., limiting like an oval funnel, the soft diamantiferous breccia.

Reef drive (Aust.). A cutting through the bed rock in alluvial mining for the purpose of seeking other underground, gold-bearing gravel channels. (Davies)

Reefer (Aust.). A miner who works on a reef. (Webster)

Reefing. Working auriferous reefs or veins. (Lock)

Reef wash (Aust.). Gold-bearing drift. (Skinner)

Reel. 1. (Scot.). A drum or frame on which winding or haulage ropes are coiled. (Barrowman)
2. In blasting, a device for winding the leading wire for avoiding kinking and breaking the wire, and keeping it in good condition. (Du Pont)

Reenforcing; Reinforcing bars. Iron or steel bars of various cross-sectional shapes used to strengthen concrete.

Reese River process. Pan amalgamation with previous roasting. (Liddell)

Reeve (Can.). A foreman in a coal mine. (Standard)

Refacción (Sp.). Repair of a mill or building; *Pieza de R.*, a repair place. (Halse)

Refaccionero (Mex.). The helper of a rock drill operative. (Dwight)

Refikite. A white, very soft resin, $C_{20}H_{16}O_2$, found in the lignite of Montorio, near Feramo, Abruzzes, Italy. (Bacon)

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Refine. 1. To free from impurities; to free from dross or alloy: to purify, as metals; to cleanse. 2. To treat cast-iron in the refinery furnace so as to remove the silicon. (Webster)

Refinery. A building and apparatus for refining, or purifying metals, oils, etc. In iron manufacturing, a form of furnace with a shallow hearth for refining cast iron to wrought iron or to iron suitable for puddling. (Webster). *See also* Run-out fire, and Electrolytic process.

Refining. 1. The purification of crude metallic products, as the refining of base bullion (silver-lead) produces nearly pure lead and silver. 2. The conversion of gray into white cast-iron in a run-out fire. (Raymond)

Refining heat. A medium orange heat, about 655° C which imparts fineness of grain and toughness to steel that is raised to it and afterwards quenched. (Webster)

Reflection goniometer. In mineralogy, an instrument for measuring angles.

Reflet. 1. (Fr.) Iridescent glaze; especially the metallic glaze in pottery. 2. Pottery having metallic or iridescent luster; especially a brilliant tinted tile. (Standard)

Reflection wave; Reflexion wave. A wave that is propagated backward through the burned gas as the result of an explosion wave being completely or partly arrested against the closed extremity, or in a constricted portion of its path, as in a tube, gallery, etc. (Mellor, Chemical Statics and Dynamics, p. 490. 1909)

Reflux valve. In hydraulics, a flap valve used for the purpose of taking off the pressure of a head of water acting in a backward direction against a set of pumps (Nat. Tube Co.). A check valve.

Refogar (Peru). To retort amalgam; to distill sulphur from sulphides. (Halse)

Refraction. 1. A change of direction when a ray of light passes from one medium to another of different density. (Power)
2. (Eng.) The percentage of inpurity in a sample of mineral salt; used principally in the saltpeter trade. (Standard)

Refractometer. An instrument for determining the index of refraction of a mineral.

Refractory. 1. Resisting the action of heat and chemical reagents; a quality undesirable in ores but desirable in furnace linings, etc. (Raymond) 2. A piece of pottery ware covered with a vaporable flux and placed in a kiln to form a glaze on other articles. (Webster)

Refuge hole. A place formed in the side of an underground haulage way in which a man can take refuge during the passing of a train, or when shots are fired (Steel). Also called Refuge stalls.

Rega (Braz.). A water conduit or launder. (Halse)

Regadura (Sp.). 1. In coal mining, undercutting, undermining, holing. 2. Undercut. (Halse)

Regalo (Mex.). A bonus to miners. (Lucas)

Regenerative furnace. A furnace for the recuperation or recovery of heat from the waste gases of combustion (Ingalls, p. 356) *See also* Regenerator.

Regenerator. A chamber, filled with open-work of brick, to take up the heat of the gases of combustion from a furnace and subsequently impart it to a current of air, the air and gas being conducted alternately through the chamber. *See* Siemens furnace. (Raymond)

Régime. In hydraulics, the condition of a river with respect to the rate of its flow as measured by the volume of water passing different cross sections at a given time. (Webster)

Regional. Extending over large areas in contradistinction to local or restricted areas. (Sloan)

Regional-metamorphism. Daubree's name for that extended metamorphism that, as contrasted with contact effects, is manifested over large areas. (Kemp)

Registrar (Sp.). To register a title to a mine. (Halse)

Registro (Sp.). 1. A register; an official entry or registration of the possession of a mine. 2. A valve; a damper. (Halse)

Reglamento (Sp.). A regulation; an ordinance. (Halse)

Regola (Sp.). In coal mining, an undercut. (Halse)

Regolith. The layer or mantle of loose, incoherent rock material, of whatever origin, that nearly everywhere forms the surface of the land and rests on the hard or "bed" rocks. It comprises rock waste of all sorts, volcanic ash, glacial drift, alluvium, wind-blown deposits, vegetal accumulations, and soils. (La Forge)

Regradation. The process of forming a new gradation level of equilibrium in a land surface by streams when an old one has become deformed. (Standard)

Regular (Mex.). Average ore; ore of fair grade. (Halse)

Regular-lay rope. A rope in which the wires in each strand are twisted in opposite direction to the strands in the rope. (C. M. P.)

Regulator. 1. A door in the mine, the opening or closing of which regulates the supply of ventilation to a district (Gresley). Usually a slide door.
2. The shutter of a fan. (Barrowman)

Regule (Fr.). A copper regulus from which most of the impurities have been removed by liquation. (Raymond)

Regulus. 1. The metallic mass that sinks to the bottom of a furnace or crucible, separating itself by gravity from the supernatant slag. 2. An intermediate product obtained in smelting ores, especially those of copper, lead, silver, and nickel, and consisting chiefly of metallic sulphides. In this sense it is synonymous with matte, or the German *stein.* Antimony *regulus* is metallic antimony. (Raymond)

Regur (Hind.). A residual, dark-colored, loamy soil of the volcanic regions of India, rich in organic matter, that is not derived from forest growth; similar to the black earth of Russia. Spelled also Regar. (Standard)

Reh (Hind). A sterilizing saltine efflorescence that forms on the surface of parts of the Valley of the Ganges from the evaporation of water rising from beneath. (Standard)

Reheater. An apparatus for reheating a substance, as ingot steel, that has cooled or partly cooled during some process. (Standard)

Reheating furnace. A reverberatory furnace in which the puddled bars, piled in packets, are reheated preparatory to rolling. (Century)

Reinite. Ferrous tungstate, $FeWO_4$. In blackish-brown tetragonal pyramids, perhaps pseudomorphous. (Dana)

Reja (Sp.). 1. A grating. A stamp-battery screen; a grizzly; *R. móvil,* a shaking screen. 2. A grate in a furnace. (Halse)

Rejilla (Sp.). 1. A jig sieve. 2. A furnace grate. (Halse)

Rejuvenation. 1. To render young again. 2. To stimulate, as by uplift, to renew erosive activity; said of streams. 3. To develop youthful features of topography in an area previously worn down to a base level. (Webster)

Relajar (Mex.). To put new stones in the bed of an *arrastre* (Halse). *See* Arrastre, 1.

Relámpago (Mex.). The brightening of the silver button during cupellation. (Dwight)

Relative humidity. The amount of vapor or water in the air, when expressed, in the form of a percentage, as the ratio of the actual quantity of moisture in the air to the quantity that would saturate it under its actual conditions as to pressure and temperature. (Standard)

Relaves. 1. (Mex.) Residue left in a *batea* from a washing test (Dwight). 2. (Chile) Residues left after the Chilean process of amalgamation (Halse). (Peru) Tailings from amalgamating plants. (Pfordte)

Releces (Colom.). Mineral left behind by former working as being unprofitable. (Halse)

Releje (Peru). Supporting mine workings by timbers. (Halse)

Relevée (Fr.). A certain thickness of coal beds and intervening measures (varying between 88 and 160 yards) in inclined strata, that forms a lift or series of workings being prosecuted to the rise at one time. (Gresley)

Relevo (Sp.). Shift; *R. de la tarde,* afternoon shift; back shift. (Halse)

Reliction. The slow and gradual recession of the water by which the land is left dry. (Shamel, p. 307)

Relief. 1. The character of the surface of a mineral section as observed under the microscope, depending upon its refractive power relative to that of the medium in which it is embedded. 2. The elevations or inequalities of a land surface considered collectively. (Webster)

Relief holes. Bore holes, that are loaded and fired for the purpose of relieving or removing part of the burden of the charges to be fired in the main blast. (Du Pont)

Relief map. A model of an area in which its inequalities of surface are shown in relief. (Webster)

Relieving timbers. Replacing broken timber sets with new ones.

Relighting station. (Aust.). A place underground where safety lamps may be lighted in case they have been extinguished. (Power)

Reliquiæ (L.) In geology, fossil organisms. (Standard)

Reliz (Mex.). Wall of vein; *R. de alto*, hanging wall; *R. del bajo*, foot wall. (Dwight)

Relleno (Sp.). 1. Stowing, filling, packing. 2. Waste, gob, or goaf; *R. de un filón*, vein filling. (Halse)

Remanie. 1. (Fr.) Derived from, or containing fossils of an older formation, as, *remanie* deposits. 2. Recemented, as a glacier formed by the falling of fragments of ice (glacier *remanie*). (Standard)

Remblais. 1. (Fr.) A system of working a very thick coal seam in central France. A horizontal slice is first taken out 6 feet 6 inches in height across the seam, and the space filled up with stone, brought from the surface. A second lift is then extracted, and so on. 2. (Fr.) Synonymous with Longwall. 3. (Fr.) Synonymous with Goaf. (Gresley)

Remingtonite. A hydrated carbonate of cobalt found in Maryland. (Century)

Remisión. 1. (Sp.) Act of sending (Halse)
2. (Mex.) A shipment. (Dwight)

Remolino (Sp.). A bunch or mass of ore. (Davies)

Removido (Sp.). Stirring or rabbling. (Halse)

Rendido (Mex.). A term applied to the *torta* when the amalgamation is concluded. (Egleston)

Rendimento. 1. (Sp.) Yield or product. (Halse)
2. *R. de metal*, ore output. (Dwight)

Rendir. 1. (Mex.) To yield. The complete amalgamation of the silver in a *patio* charge. (Dwight)
2. *R. los humos* (Peru), said of ores completely oxidized by roasting. (Halse)

Rend-rock. A variety of dynamite used in blasting, consisting of nitroglycerin, saltpeter, wood pulp, and paraffin or pitch. (Webster)

Reniform. Kidney-shaped; applied to certain minerals. (Thompson)

Renk. 1. An average or standard distance for putting coal at a stated price. (Webster)
2. (Newc.) The average distance coal is brought by the putters. (Raymond)

Rensselaerite. 1. Wax-like masses of talc. Pseudomorphous after pyroxene. (Moses)
2. E. Emmons's name for a talcose rock from St. Lawrence County, N. Y. (Kemp). Now obsolete.

Repairer. *See* Repair man.

Repair man. A workman whose duty it is to repair tracks, doors, brattices, or to reset timber, etc., under the direction of a foreman (C. and M. M. P.). A repairer.

Repasador. 1. (Mex.) The man who turns over pulp in the *patio*. (Dwight)
2. Also one who mixes the ore by treading in the mercury, or who drives mules in that operation. (Halse)

Repasadora (Mex.). A kind of machine for kneading or treading the *torta*. (Halse)

Repasar (Sp.). To stir the batches of ore, in which *magistral* and quicksilver are mixed, as in the *patio* process. (Halse)

Repaso (Mex.). The act of mixing the *patio* charge by treading it with horses or mules. (Dwight)

Repeated twinning. In crystallography, three or more crystals united according to the same law. (Standard)

Replacement. The process by which one mineral or chemical substance takes the place of some earlier different substance, often preserving its structure or crystalline form. (Farrell)

Replacement vein. A vein in which certain minerals have passed into solution and have been carried away, while other minerals from the solution have been deposited in the place of those removed. The process is called Metasomatic replacement. Also called Substitution vein. (Shamel, p. 152)

Replacing-switch. A device consisting of a united pair of iron plates hinged to shoes fitting over the rails to replace, on the track, derailed railway rolling stock (Century). Also used for mine cars.

Reposadero (Mex.). 1. The bottom of a crucible or pot in an upright smelting furnace. (Dwight)
2. A settling tank used in the *patio* process. 3. A receptacle for molten lead in front of a furnace. 4. The contents of a forehearth. (Halse)

Representation work. Same as assessment work on a mining claim. (U. S. Min. Stat., pp. 233–253)

Repressed brick. Bricks that have been put through a second pressing machine after molding to improve their shape, etc. (Ries)

Repressing-machine. A machine for making pressed bricks or for giving ordinary green bricks a second pressing. (Standard)

Resacatín (Sp. Am.). One who buys small quantities of ore from Indians. (Halse)

Resbalón (Sp.). A vertical lode. (Lucas)

Rescatador (Mex.). An ore buyer. (Dwight)

Rescate (Mex.). 1. The purchase of ores. 2. Purchased ores. (Dwight)
3. Public sale of ores. 4. An ore-buying agency. (Halse)

Rescue. To move live men or dead bodies from a mine after a mine disaster. Sometimes called Recover. The latter applies especially to putting the mine in shape for operation again.

Rescue-apparatus. *See* Mine rescue-apparatus.

Rescue-car. *See* Mine rescue-car.

Rescue-crew. *See* Mine rescue-crew.

Resecos (Mex.). Earthy carbonates of lead (Halse). Dry ores. (Dwight)

Reservas (Sp.). Ore reserves. (Halse)

Reserve. 1. To keep back; to keep in store for future or other use. 2. That which is held back, or in stock. Specifically, known ore bodies that may be worked at some future time, as ore reserves.

Reserved coal (Scot.). Coal not included in, but reserved from lease, as coal under buildings. (Barrowman)

Resguardo (Mex.). A penthouse used at the bottom of a shaft as a protection to men while shaft-sinking. (Halse)

Residual. 1. (*a*) Characteristic of, pertaining to, or consisting of residuum. (*b*) Remaining essentially in place after all but the least soluble constituents have been removed: said of the material eventually resulting from the decomposition of rocks. 2. Standing, as a remnant of a formerly greater mass of rock or area of land, above a surrounding area which has been generally planated: said of some rocks, hills, mountains mesas, plateaus, and groups of such features. (La Forge)

Residual clay. A clay deposit formed by the decay of rock in place. This type is abundant in the Southern States. (Ries)

Residual deposits. *See* Residual, 1*b*, as Residual gravel, sand, clay, etc.

Residuary. Resulting from local rock decay: said of deposits of disintegration that have not been transported. *See* Residual, 1.

Residue. 1. The solid matter remaining after a liquid has been filtered or evaporated. (Duryee)
2. The waste or final product from a hydrometallurgical plant which, at the time of operation, is valueless as far as metal content is concerned. (Eng. and Min. Jour., vol. 107, p. 317)

Residuo (Sp.). 1. Waste from picking ore; final sludge from tin dressing.
2. Alluvial detritus. (Halse)

Residuum. 1. The residue obtained on the distillation of crude petroleum after the constituents boiling below 620° F. have been removed. 2. The residue left in the still after the distillation of crude oil has been completed, and not the residue from redistilled condensates. Also known as the cokings and tailings. (Bacon)
3. The material eventually resulting from the decomposition of rocks in place and consisting of the nearly

insoluble material left after all the more readily soluble constituents of the rocks have been removed. (La Forge) *See also* Residual 1.

Resin. 1. A term applied to secretions of saps of certain plants or trees. It is an oxidation or polymerization product of the terpenes, and generally contains "resin" acids and esters (Bacon). *See* Kauri gum.
2. A term applied to the solid bitumens. *See* Bitumen. (Bacon)

Resin jack. *See* Rosin jack.

Resinous. Resembling resin, as opal, and some yellow varieties of sphalerite. (Dana)

Resin tiff. A light colored zincblende. (Power)

Resistal. A trade name for a special glass used in the manufacture of goggles.

Resorption. A partial refusing of phenocrysts in a porphyritic rock, followed by recrystallization in modified forms. (Standard)

Resorption border. A border of secondary minerals surrounding an original crystal constituent of a rock, produced by partial resorption and recrystallization. (Standard)

Resorte (Mex.). A spring; a spring buffer for rolls. (Dwight)

Respaldeador (Sp.). A cobbing hammer. (Lucas)

Respaldo (Sp.). Wall of a vein; *R. alto*, hanging wall; *R. bajo*, footwall. (Halse)

Respiradero (Sp.). 1. An air shaft. 2. The snore hole of a pump. 3. A blow hole of a volcano through which gases are emitted. (Halse)

Respirator. A device, as a screen of fine wire or gauze, worn over the mouth or nose, by workmen who are obliged to breathe air containing dust or smoke. (Standard)

Resplendent. Shining with brilliant luster; very bright (Century). Sometimes said of minerals.

Rests. The arrangement at the top and bottom of a shaft, or intermediate levels, for supporting the shaft-cage while changing the tubs or cars (Raymond.) Also called Chairs, Keeps, Catches or Wings.

Resue. To open up a stope, not in the vein but in the wall rock. *See* Resuing.

Resuing. A method of stoping wherein the wall rock on one side of the vein is removed before the ore is broken. Employed on narrow veins, (less than 30 inches) and yields cleaner ore than when wall and ore are broken together (Crane).

Resuscitate. To restore to animation or life; especially to restore from apparent death; revive; revivify; as, to *resuscitate* a drowned person (Standard). In cases of electric shock, axphyxiation from mine gases, etc., to revive by means of artificial respiration.

Retaining wall. A wall built to retain earth behind it. (Duryee)

Retaque (Mex.). Lagging and filling combined. (Halse)

Retenida (Mex.). A pillar in a stope. (Dwight)

Reticulate. To divide or mark so as to resemble or form network. (Webster)

Reticulated masonry. Masonry of small square stones, bricks, or tiles placed diagonally, or occasionally of blocks of diamond shape. Called also Reticulated work. (Standard)

Reticulated veins. Veins that cross each other, forming a network. (Power)

Retinalite. A resinous, variety of massive serpentine. (Dana)

Retinellite. A light brown, resinoid substance separated by alcohol from retinasphalt; it begins to fuse at 121° C. (Bacon)

Retinite. The current name, among the French, for pitchstone. (Kemp)

Retirado (Sp.). Working homewards; retreating. (Halse)

Retonation wave. A wave propagated backwards through the burned gases from the starting point of an explosion wave, as of an explosion of gas. (Mellor, Chemical Statics and Dynamics, p. 490. 1909)

Retort. 1. A vessel with a long neck, used for distilling the quicksilver from amalgam. *See* Amalgam retort. 2. The vessel used in distilling zinc. (C. and M. M. P.) 3. To treat by heating in a retort, as gold amalgam, to drive off the mercury and recover the gold. (Webster)

Retorta (Mex.). Retort. (Dwight)

Retort-house. The building containing the gas-retorts in which gas is manufactured. (Standard)

Retorting. 1. Removing the mercury from an amalgam by volatilizing it in an iron retort, conducting it away, and condensing it. (Raymond)
2. In the sulphur industry, synonymous with sublimation, which *see*.

Retort oven. A coke oven that conserves the gas evolved. (C. and M. M. P.)

Retort scaler. An implement for scraping clean the insides of gas retorts. (Standard)

Retreat. To treat over again. Said of tailings from ore-dressing plants.

Retreatal moraine. A moraine deposited during the retreat of the last Pleistocene ice-sheet. (Standard)

Retreating system. 1. A system of robbing pillars in which the line of pillars being robbed retreats or moves from the boundary toward the shaft or mouth of the mine.
2. In longwall mining the system in which all passages are driven to the boundaries and the working face retreats toward the shaft or mouth of the mine. *See* Longwall method.

Return. 1. The air course along which the vitiated air of a mine is returned or conducted back to the upcast shaft. (Steel)
2. The rate of yield of product in any given process of the production per unit of cost, especially in an industrial process. (Webster)

Return air. The air or ventilation that has passed through the workings. (Gresley)

Return aircourse; Return airway. *See* Return, 1.

Return tunnel (Aust.). A tunnel or adit used as a return airway. (Power)

Reussin. An impure Glauber's salt (mirabilite), found native. (Standard)

Reussinite. A resin-like, reddish-brown oxygenated hydrocarbon, soluble in boiling alcohol and in ether (Bacon). Found in certain coal deposits.

Reventazón (Lower Cal., Mex.). Outcroppings. (Lucas)

Reverberar (Mex.). To roast. (Dwight)

Reverberate. 1. To deflect flame or heat, as in a reverberatory furnace.
2. To reduce by reverberated heat; to fuse. (Century)

Reverberatory furnace. A furnace in which ore is submitted to the action of flame without contact with the fuel. The flame enters from the side or end, passes upward over a low wall or bridge, strikes the roof (arch) of the furnace, and is reverberated downward upon the charge. (Raymond)

Reverse bearing. In surveying, a sight taken backward for the purpose of verifying the foresight (Standard). *See* Backsight, 2 and 3.

Reversed stream. *See* Obsequent stream,

Reverse fault. *See* Fault.

Reversing machine. A molding machine having a flask or flasks that may be turned over for ramming the sand. (Standard)

Reversing rolls. *See* Three-high train.

Revestimiento (Sp.). A casing, lining, or covering used in mines. (Halse)

Revet. To face, as with slabs of stone or with any kind of masonry; furnish with a revetment, as to *revet* an embankment, wall, or building. (Standard)

Revet crag. In geology, one of a series of narrow, pointed outliers of eroded strata, inclining inwardly, like a revetment against a mountain. (Standard)

Revetment. A facing, sheathing, or retaining wall, as of masonry or other materials, for protecting a mass or bank of earth, etc., as in fortifications and river banks. (Standard)

Revierbeamt (Ger.). The chief inspector of a district, who gives actual decisions, subject to appeal, in reference to mining questions, rules, etc. (Gresley)

Reviewing (Eng.). *See* Toller.

Revived. Having had its ability to cut down its bed renewed or augmented through increase of its gradient by deformation of the earth's crust by an uplift or tilt; said of certain streams. (La Forge)

Revoltura (Mex.). 1. The mixing of ore with fluxes. 2. A furnace charge. 3. The frequent stirring of minerals during calcination. (Halse)

Revolving screen. A trommel, for sizing or classifying ore.

Reward claim (Aust.). A prospecting claim; often shortened to *reward.* (Webster) A mining claim granted to the discoverer of a mineral-bearing district.

Rezagado (Mex.). Piled up. (Dwight)

Rezago (Mex.). 1. Waste rock. (Dwight)
2. Ore left in a mine. (Halse)

Rezilite mastic. A preparation of elaterite containing asbestos fiber; it is used for surfacing floors. (Bacon)

Rhabdomancy. Alleged divination by rod or wand when searching for minerals. (Power)

Rhaetic beds. Certain fossiliferous shales and limestones of the Upper Trias of Europe and elsewhere. Called also Avicula-contorta zone. (Standard)

Rhaetizite. A white variety of cyanite found in Tyrol. (Dana)

Rhenania furnace. A combination of the Hasenclever and O'Harra furnaces, with four hearths, and with a combination flue under the lowest hearth and one over the upper hearth. Has mechanical rabbles. (Ingalls, p. 156)

Rhenish furnace. A zinc distillation furnace which is a modified type of the Silesian furnace. (Ingalls, p. 413)

Rheostat. 1. An instrument for inserting varying resistance in an electric circuit for controlling the intensity of an electric current. 2. An instrument for testing blasting machines by inserting definite resistance equal to a known number of electric blasting caps of a standard length wire, using one electric blasting-cap as an indicator. (DuPont)

Rhigolene. The most volatile liquid fraction obtained in the distillation of petroleum. It has a boiling point of 18° C. and consists largely of pentane; its specific gravity is 0.60. (Bacon)

Rhinestone. A colorless gem-stone made of paste or strass, and cut, usually as a brilliant, to imitate the diamond. (Standard)

Rhodite. Same as Rhodium gold. (Standard)

Rhodium. A rare element of the light platinum group found in platinum ores and separated as a grayish white metal; insoluble in acids and very difficult to fuse. Symbol, Rh; atomic weight, 102.9; specific gravity, 12.2. (Webster)

Rhodium gold. A native alloy containing from 34 to 43 per cent of rhodium and from 57 to 66 per cent of gold. Called also Rhodite. (Standard)

Rhodochrosite. Manganese carbonate, $MnCO_3$. (U. S. Geol. Surv.)

Rhodolite. A variety of garnet characterized by its roselike color and brilliant luster. Composition corresponds to 2 molecules of pyrope and 1 of almandite. (U. S. Geol. Surv.)

Rhodonite. Manganese silicate, $MnSiO_3$ (U. S. Geol. Surv.). Also called Manganese spar.

Rholites. A word employed by M. E. Wadsworth to designate smelting materials or fluxes. (Power)

Rhomben-porphyries. A name applied to certain Norwegian porphyries, whose phenocrysts of orthoclase resemble a rhombohedron. The orthoclase is rich in soda. (Kemp)

Rhombic dodecahedron. In the isometric system, the ordinary dodecahedron, formed by twelve faces, each parallel to one axis and having equal intercepts on the other two. (La Forge)

Rhombic mica. A synonym for Phlogopite. (Chester)

Rhombic quartz. An old name for Feldspar. (Chester)

Rhombic system. In crystallography, same as orthombic system. (A. F. Rogers)

Rhombohedral. 1. Of, pertaining to, forming, or crystallizing in rhombohedrons. 2. Pertaining to, or belonging in, that group of the hexagonal system which is characterized by a vertical axis of three-fold symmetry and three horizontal axes of two-fold symmetry. (La Forge)

Rhombohedral system. 1. The same as the hexagonal system, except that the forms are referred to three axes parallel to the faces of the fundamental rhombohedron instead of to the usual four axes. 2. The trigonal division of the hexagonal system, the forms being referred to the same three axes as above. (Neither usage has been generally accepted.) (La Forge))

Rhombohedron. A crystal form bounded by six faces of rhombic outline. (Perkins)

Rhomb-spar. A synonym for Dolomite. (Chester)

Rhone. 1. (Scot.) A wooden channel for conveying water. 2. (Scot.) A line of wooden boxes for conveying air. (Barrowman)

Rhums (Scot.). Bituminous shale. (Barrowman)

Rhyacolite. A variety of orthoclase occurring in glassy crystals in lava (Webster). *See* Sanidine.

Rhyolite. A felsophyric to vitreous igneous rock composed essentially of quartz and alkalic feldspar, or of rock glass having substantially the same composition, with or without biotite, hornblende, or pyroxene; liparite. (La Forge) Rhyolite is current in America, whereas liparite and quartz-trachyte are more used abroad. The name was given in 1860 by v. Richthofen (Kemp). A lava, usually of light color, corresponding in chemical composition to granite. The same molten liquid that at great depth within the earth solidifies as granite would, if it flowed out on the surface, cool more quickly and crystallize less completely as rhyolite. (Ransome)

Rib. 1. In coal mining, the solid coal on the side of a gallery or long wall face; a pillar or barrier of coal left for support. 2. The solid ore of a vein; an elongated pillar left to support the hanging-wall, in working out a vein. (Raymond)
3. (Scot.) A thin stratum, as of stone, in a seam of coal. (Barrowman) Also spelled Ribb.
4. A stringer of ore in a lode.

Rib-and-pillar (So. Staff.). A system upon which the "Thick coal" seam was formerly extensively mined, being a kind of pillar-and-stall plan. (Gresley)

Riband stone (Eng.). Sandstone in thin layers alternating in color, generally light and dark gray (Gresley). A variation of Ribbon, 2.

Ribbed. Containing bone (Raymond). Said of coal.

Ribbing. 1. (Lanc.) A strip of coal three yards in width. 2. Enlarging a heading or drift. (Gresley)

Ribbon. 1. A mass of soft or sticky material adhering to a roll during the process of crushing. (Richards, p. 881)
2. Having parallel bands or streaks; as, *ribbon* jasper; in this sense commonly *riband* (Standard). When the lines of contrast are on a larger scale they are said to be *banded*.

Ribbon borer. A boring tool consisting of a twisted flat steel-blade. (Raymond)

Ribbon brake. A friction-brake having a metal strap that encircles a wheel or drum and may be drawn tightly against it (Standard). A band-brake.

Ribbon jasper. *See* Ribbon, 2.

Ribbon rock. *See* Ribbon, 2.

Rib road (Scot.). A road formed along the rib side. (Barrowman)

Rib shot. A shot in the face next to a rib. (Steel)

Rib side (Scot.). The edge of solid mineral left by a longwall working. In longwall working, if one face or wall is considerably in advance of the next it is said to have a ribside. (Barrowman)

Rice coal. A fine size of anthracite. (Webster)

Rice stone. A kind of stone spotted as with rice grains. (Standard)

Richards' pulsator classifier. A classifier operating in such a manner that the pulp grains fall through a sorting column against an upward pulsating current of water. It has no screen. (Liddell)

Richards' pulsator jig. *See* Pulsator jig.

Richards' shallow-pocket hindered-settling classifier. A series of pockets through which successively weaker streams of water are directed upward. The material that can settle does so and is drawn off through spigots. (Liddell)

Ricing (No. Staff.). Lagging. *See* Lacing, 1. (Gresley)

Ricket; Ricketing. 1. (Mid.) A narrow brattice for ventilation. 2. (Mid.) A channel formed along the floor of a mine for drainage purposes. (Gresley)
3. An airway along the side of an adit or shaft. (Morine)

Rick (Penn.). An open heap or pile in which coal is coked. (Raymond)

Rickle (Scot.). A heap or pile, as of stones or peat, loosely thrown together (Century). Same as Rick.

Rico (Mex.). Rich. (Dwight)

Ricolite. A banded variety of verd-antique from New Mexico. (Webster)

Ridar (Corn.). A sieve; a riddle. (Pryce)

Riddam (Eng.). Water, reddish with iron; also scum. (Webster)

Ridding. 1. (No. of Eng.) Separating ironstone from coal shale. (Gresley)
2. Clearing away fallen stone and débris. (C. and M. M. P.)

Ridding pucking (So. Wales). Cutting up or removing a crept floor. (Gresley)

Riddle (Corn. and Scot.). A sieve. The large pieces of ore and rock picked out by hand are called knockings. The riddlings remain on the riddle; the *fell* goes through. (Raymond)

Riddlings. *See* Riddle.

Ride over (Ark.). A squeeze that extends into the workings beyond the pillar. It is said to ride over the pillar. (Steel)

Rider. 1. A thin seam of coal overlying a thicker one. (Steel)
2. The rock lying between two lodes or beds. (Davies)
3. A mass of country rock inclosed in a lode. A horse. (Skinner)
4. A person who rides with the trains of cars, to handle brakes, couple cars, signal, etc., as rope *rider*, trip *rider*. (Steel)
5. (Eng.) A guide-frame for steadying a bucket in a sinking pit. (Gresley)
6. An ore-deposit overlying the principal vein. (Standard)
7. (No. of Eng.) A ferruginous veinstone, or a similar impregnation of the walls adjacent to the vein. (Century)

Ridered. Relating to the country-rock of a vein when impregnated by the vein materials in strings (Standard). *See* Rider, 7.

Ride-the-tow (Scot.). To slip or slide down the shaft rope. (Barrowman) *See* Run-the-tow, 2.

Ridge fillet. A runner or principal channel for molten metal. (Standard)

Ridge roll. A curved piece for covering the ridge of a roof laid with roofing tile. (Ries)

Ridge-T. Used in roof tiling to indicate a trimming piece for use at the intersection of two ridges. (Ries)

Ridge tile. A roofing tile having the upper half flattened to a plane, and used at the roof ridge. It is covered by a finishing tile. (Ries)

Ridgeway filter. A horizontal revolving, continuous vacuum filter. The surface is an annular ring consisting of separate trays with vacuum and compressed air attachments. The filtering surface is on the under side, the trays being dipped into the tank of pulp to form the cake, and then lifted out of it. (Liddell)

Ridging. *See* Cresting.

Riding. Said of mine timbering when the sets are thrust out of line, or lean. (Sanders, p. 156)

Rid up. To clean out rubbish or waste from a mine, metallurgical plant, etc.

Rid-up runners. To clean up after a cast, as when the scrap, slag, and iron is removed from runners, troughs, and skimmers, and they are freshly clayed, loamed, or sanded. (Willcox)

Riego (Sp.). 1. Irrigation. 2. Allaying coal dust by means of a spray. 3. (Colom.) Float ore. (Halse)

Riel (Sp.). 1. A railroad rail. 2. A small bar or ingot of crude gold, silver, or copper. (Halse)

Riffle. 1. From the Danish *rifle*, a groove or channel. In mining, the lining of the bottom of a sluice, made of blocks or slats of wood, or stones, arranged in such a manner that chinks are left between them. The whole arrangement at the bottom of the sluice is usually called *the riffles*. In smaller gold-saving machines, as the cradle, the slats of wood nailed across the bottom are called *riffle-bars*, or simply *riffles* (Century). A groove in the bottom of an inclined trough or sluice, for arresting gold contained in sands or gravels. (Standard)
2. A ripple in a stream or current of water; also a place where the water ripples or is set in violent commotion, as on rocks or shallow rapids. (Webster)
3. A modification of the split shovel, *which see*. (Richards, p. 844)

Riffle-bars. Slats of wood nailed across the bottom of a cradle or other gold-washing machine for the purpose of detaining the gold. (Century)

Riffle-blocks. Cross sections of timber set on the floor of a sluice, with irregular spaces between, in which the gold settles. Also called Riffle-bars. *See* Riffle. (Miller)

Rifled. 1. A drill hole, in rock, that has become three-cornered while drilling. (Gillette, p. 24)
2. Said of a drill-core that has spiral markings.

Rifled pipe. A pipe used for conveying heavy oils. The pipe is rifled with helical grooves which make a complete turn through 360 degrees in about 10 feet of length. (Nat. Tube Co.)

Rifles (Sp. Am.). Riffles. (Lucas)

Rifling (So. Staff.). 1. Working the upper portion of a coal seam over waste or goaf. (Gresley)
2. The spiral grooves appearing on the surface of drill cores.

Rift. 1. An obscure foliation, either vertical (or nearly so) or horizontal, along which a rock splits more readily than in any other direction. *See* Grain, 1. (Watson, p. 462)
2. *See* Fault trace. 3. A shallow rocky place in a stream. (Webster)

Rift valley. A relatively long and narrow trough-like valley formed by the sinking of a strip of the earth's crust between two approximately parallel and opposed normal faults or zones of faulting. (La Forge)

Rig. A derrick, with its engine house, etc., necessary to run it, used for boring, and afterwards pumping, an oil well; also, the derrick itself. (Webster)

Rigger. A semi-skilled employee at blast furnaces, whose duties are largely with construction and repair work, rather than maintenance. Skilled in use of hoist tackle, winches, etc., and usually able to do riveting and to assemble material. (Willcox)

Right-angled block. In quarrying a block of stone bounded by 3 pairs of parallel faces, all adjacent faces meeting at right angles. (Bowles)

Right of way. A grant by Act of Congress, to convey water over or across the public domain, for mining purposes. (U. S. Min. Stat., p. 612)

Right running (No. of Eng.). 1. Applied to a vein carrying ore in beds often unproductive (Bainbridge).
2. Rake veins extending approximately east and west. (Power)

Right-running lode. A lode parallel to the axis of elevation of the district. (Standard)

Rill. 1. The coarse ore at the periphery of a pile. (C. and M. M. P.)
2. A very small brook; a streamlet. (Webster)

Rill-cut stoping. *See* Rill stoping.

Rill-cut vertical stopes. *See* Rill stoping.

Rill marks. Small depressions in sandstone, produced by the eddying of a retreating wave on a sea beach under the lee of some small obstruction, such as a shell or pebble. (Kemp)

Rill stoping. Stoping in which the ore is cut back from the winzes in such a way that an inverted pyramid-shaped room is created, with its apex in a winze and its base at the level. (H. C. Hoover, p. 98)
Sometimes called Pyramidal stoping, Inclined cut and filling, Rill-cut vertical stopes, Overhand stoping in inclined floors, and Rill-cut stoping.

Rim rock. The bedrock rising to form the boundary of a placer or gravel deposit. (Raymond)

Rine pan. A pan in which salt water is evaporated to obtain salt.

Ring. 1. A complete circle of tubbing plates around a circular shaft.
2. Troughs placed in shafts to catch the falling water, and so arranged as to convey it to a certain point. (Steel)
3. (Newc.). A gutter cut around a shaft to catch and conduct away the water. (Raymond)
4. (So. Staff.). A circular piece of wrought-iron, about 8 inches deep, placed on the top of a skip of coal to increase its capacity. (Min. Jour.)

Ring crib (Eng.) A wedging crib upon which tubbing is placed, having a gutter or ring cast round the inner edge, to collect any water that may run down the walls of the shaft. (Gresley)

Ringer. 1. (Derb.) A hammer for driving wedges. (Gresley)
2. A crowbar. (Webster)

Ringer-and-chain (Mid.). *See* Dog and chain, 1.

Ring kiln; Sod kiln. A lime kiln made by digging a conical pit, filling it with alternate layers of limestone and fuel, and covering the top with sods. (Standard)

Ring ore. Fragments of gangue covered with regular deposits of other minerals. *See* Sphere ore. (Power)

Ring pit. A circular pit in which a large wheel is revolved for tempering clay. (Ries)

Ring-small. Designating stones, as for road-making, small enough to pass through a ring of specified diameter. Ring-small stones. (Webster)

Ring stone. A voussoir showing on the face of the wall, so called as helping to make up the arch ring. (Webster)

Ring wall. The inner fire-brick wall of a blast furnace. (Standard)

Riñón (Mex.). 1. A kidney-shaped mass of ore. 2. Reniform tin ore. 3. (Colom.) A place in a mine where ore is abundant. (Halse).

Río (Sp.). River; stream. (Halse)

Riolita (Sp.). Rhyolite. (Halse)

Rip (Mid.). To cut or blast down the roof or top (Gresley). Also to take up the floor or bottom. (Barrowman)

Riparian rights. The rights of a person owning land containing or bordering on a watercourse or other body of water in or to its banks, bed, or waters. At the common law a person owning land bordering a non-navigable stream owns the bed of the stream and may make reasonable use of its waters. (Webster; also U. S. Min. Stat., p. 619)

Ripiadores (Colom.). Workmen employed to lower ore through a winze. (Halse)

Ripidolite. *See* Clinochlore and Prochlorite.

Ripio (Sp.). 1. Rubble. 2. Ballast material. 3. (Mex.) Fragments of stone placed between the stones forming the bed of an arrastre. 4. Waste; attle; deads. 5. (Colom.) Spalled ore; small ore from the mine. 6. (Chile) Residue obtained by evaporating caliche. (Halse)

Ripper. 1. (Mid.) A man who rips. *See* Rip. (Gresley). 2. A slate-edging tool. (Standard)

Ripping-bed. A machine for cutting stone into slabs; a gang stone-saw. (Standard)

Ripple. A groove or bar across sluices for washing gold (Roy. Com.). *See* Riffle.

Ripple board. An inclined trough having grooves or strips across its bottom to catch fine gold (Duryee). A riffle.

Ripple drift. A rock-structure resulting from the constant deposition of silt, where ripple-marked surfaces are successively formed, and thus covered and preserved (Standard). *See* Ripple mark.

Ripple mark. The wavy surface of some beds of sandstone and mudstones, produced by gentle movement in shallow water when these rocks were in a soft condition. (Roy. Com.)

Rippling. *See* Ripple mark.

Riprap. A foundation or sustaining wall of stones thrown together without order. (Webster)

Risco (Mex.). 1. Sharp, precipitous rock. 2. Quartz found in veins or outcrops. (Dwight)

Rise. 1. To dig or work upward in mining, in opposition to sink. 2. A shaft excavated from below upward (Webster and Standard). The completed excavation is also called a Raise, Upraise, or Riser. *See* Raise. 3. The inclination of the strata, when looking up hill. To the rise is directly up hill in an inclined coal seam. (Steel)

Rise doors (Scot.). The entrance from a shaft into upper workings. (Barrowman)

Rise heading. A heading driven to the rise in long-way workings. *See* Heading, 3. (Raymond)

Rise level (Scot.). The upper of two parallel level roads. (Barrowman)

Riser. 1. A shaft excavated from below upward (Webster). *See* Raise, *also* Rise, 2.
2. (No. of Eng.) An upthrow fault. (Gresley)
3. A passage or channel from the interior of a mold, in which the molten metal rises and by its pressure keeps the mold full as the metal in the latter contracts. 4. In mining, a rising main; *See* Column-pipe. (Standard)

Rise split (Eng.). The proportion of the ventilating current sent into the rise workings of a mine. (Gresley)

Rise workings (Eng.). Underground workings carried on the rise or high side of the shafts. (Gresley)

Rising. 1. An excavation carried from below upward; a rise or riser. 2. The boiling in the mold of molten steel after teeming. 3. The honeycombing of a steel casting, caused by such boiling. (Standard)

Rising column (Scot.). Delivery pipes of a ram or plunger pump. (Barrowman)

Rising main. *See* Column pipe.

Rither (Eng.). The matrix in which an ore occurs. *See* Rider, 7. (Bainbridge)

Rittinger table. A side-bump table with plane surface, actuated by a cam, spring, and bumping post. (Liddell)

Rivelaine. A pick with one or two points, formed of flat iron, used to undercut coal by scraping instead of striking. (Raymond)

River-bar placers (Alaska). Placers on gravel flats in or adjacent to the beds of large streams. (U. S. Geol. Surv. Bull. 259, p. 33)

River claim. A claim that includes the bed of a river. (Duryee)

River drift. The gravel deposits accumulated by a river in its torrential stages. (Century)

River marble. *See* Landscape marble.

River mining. Mining or excavating beds of existing rivers after deflecting their course, or by dredging without changing the flow of water.

River pebble. A term applied in Florida to a certain class of phosphatic pebbles, or concretions, found in rivers as distinguished from land pebble phosphates. (Power)

River right. Same as Creek right. (Duryee)

River valley. The depression made by the stream, and by its various processes which precede and accompany the development of the stream. (Webster)

Rives-in (Eng.). To crack open, or produce fissures. (Gresley)

Rivet catcher. An appliance attached to the pump rods of oil wells to prevent damage to the pump from the dropping of rivets from the pump rods. (Mitzakis)

Rivet steel. A soft kind of mild steel, used especially for making rivets. (Webster)

Riving seams. Open fissures between beds of rock in a quarry. (Hitchcock)

Roach (Eng.). 1. The upper and most valuable bed of Portland stone (Standard). 2. A rock; refuse gritty stone.

Roadbed. The material part of a road; primarily, the foundation of gravel, road-metal, etc., constituting the bed, but by extension, especially in railway use, the superstructure also. (Standard)

Road binders. A group of products consisting of petroleum asphalt, properly fluxed with heavy petroleum oils that will not evaporate and of such qualities that they will bind the road materials together both in summer and winter. (Bacon)

Roadhead (Scot.). In long-wall, the end of a road at the working face (Barrowman). *See* Gate end.

Roading (Eng.). Repairing and maintaining roads. (Gresley)

Roadman. A person whose duty it is to keep the roads of a mine in order. (Roy)

Road material. *See* Road metal.

Road metal. Rock suitable for surfacing macadamized roads and for foundations for asphalt and concrete roadways. (U. S. Geol. Surv.)

Roadstones. Stones used for road metal. (Webster)

Roadway (Aust.). An underground passage, whether used for haulage purposes or for men to travel to and from their work. (Power)

Roaring (Cal.). A disease among horses in which there is partial or complete paralysis of certain muscles of the neck and throat, often a result of lead poisoning. (U. S. Bur. Mines, Bull. 98, p. 54)

Roast. To heat to a point somewhat short of fusing, with access of air, as to expel volatile matter or effect oxidation; in copper metallurgy, applied specifically to the final heating which causes self-reduction to occur by the reaction between the sulphide and the oxide. (Webster)

Roaster. 1. A contrivance for roasting, or a furnace for drying salt cake. (Webster)
2. A reverberatory furnace or a muffle used in roasting ore. (Standard)

Roaster slag. Slag resulting from the calcination of the "white metal" in the English process of copper-smelting. (Standard)

Roasting. Calcination, usually with oxidation. Good, dead, or sweet roasting is complete roasting, *i. e.*, carried on until sulphurous and arsenious fumes cease to be given off. Kernel-roasting is a process of treating poor sulphide copper ores, by roasting in lumps, whereby copper (and nickel) are concentrated in the interior of the lumps. (Raymond)

Roasting and reaction process. The treatment of galena in a reverberatory, by first partly roasting at a low temperature, and then partly fusing the charge at a higher temperature, which causes a reaction between the lead-oxide formed by roasting and the remaining sulphide, producing sulphurous acid and metallic lead. (Raymond)

Roasting and reduction process. The treatment of lead ores by roasting to form lead-oxide, and subsequent reducing fusion in a shaft furnace. (Raymond)

Roasting cylinder. A furnace with a rotating cylinder for roasting ore. (Standard). *See* Brückner furnace.

Roasting furnace. A furnace in which ore is roasted.

Roasting kiln. A kiln for roasting ore.

Roasting oven. An oven for roasting ores.

Roast stall. A form of roasting furnace, built in compartments or stalls open in front, with flues running up the wall at the back for the purpose of creating a draft. (Century)

Rob. To extract pillars previously left for support; or, in general, to take out ore or coal from a mine with a view to immediate product, and not to subsequent working. (Raymond)

Robbed out (Cumb.). Work away. *See* Hollows (Gresley). Said of a mine or part of a mine from which the pillars have been removed.

Robbing; Robbing pillars (Scot.). Reducing the size of pillars; taking as much as possible off pillars, leaving only what is deemed sufficient to support the roof. (Barrowman)

Robble (Eng.). A fault. (Gresley)

Robson and Crowder process. An early oil flotation process. The oil was added to several times its weight of ore and mixed in a slowly revolving drum or tube. The process at one time had quite a large application. The process used but little water, 25 per cent to 30 per cent and no acid. (Megraw, p. 14; T. J. Hoover, p. 6)

Roburite. An explosive containing, according to one formula, chlorinated dinitrobenzene and ammonium nitrate. (Webster)

Roca (Sp.). 1. Rock standing out from the general surface. 2. Rock or stone, whether in the ordinary or geological sense. 3. A vein or bed of hard rock and stone. (Halse)

Rocalla (Sp.). Drift of pebbles washed together by floods; talus. (Halse)

Roche. 1. (Prov. Eng.) Refuse gritty stone. 2. A rock. Spelled also Roach. (Standard)

Roche lime (Eng.). Lime in the lump after it is burned; quicklime. (Webster)

Rochelle salts. Potassium-sodium tartrate, $KNaC_4H_4O_6.4H_2O$.

Roches moutonnées. Rounded hummocks or bosses of rock like whales' backs, smoothed and striated by glacial action (Roy. Com.). Called also, Dressed rocks; Sheep-back rocks.

Rochlederite. A resinoid, reddish-brown oxygenated hydrocarbon, found in brown coal in Bohemia; it melts at 100° C. and is soluble in alcohol. (Bacon)

Rock. 1. (*a*) Strictly, any naturally formed aggregate or mass of mineral matter, whether or not coherent, constituting an essential and appreciable part of the earth's crust. (*b*) Ordinarily, any consolidated or coherent and relatively hard, naturally formed mass of mineral matter; stone. (La Forge) In instances a single mineral forms a rock, as calcite, serpentine, kaolin, and a few others, but the vast majority of rocks consist of two or more minerals.

2. (Lake Superior) Crude copper ore as it comes from the mines. The concentrate obtained is called *mineral*, and contains about 65 per cent metallic copper.

3. (N. Y. and Pa.) A local term for the more massive beds of bluestone that are not jointed and are, therefore, well suited for structural purposes. (Bowles)

4. A peak, cliff, promontory, or the like, of rock, usually bare, and considered as one mass, as the Rock of Gibraltar. 5. (Corn.) A big lump of ore. (Webster)

Rock-and-rig (So. Staff.). A sandstone full of little patches and shreds of coal. (Gresley)

Rock asphalt. Sandstone or limestone naturally impregnated with asphalt. (Bacon)

Rock-asphalt pavement. A wearing course composed of broken or pulverized rock-asphalt, with or without the addition of other bituminous materials. (Bacon)

Rock basin. A depression or basin-like excavation in the solid rock, sometimes of great extent. Nearly all lakes, even the largest of them, are entirely surrounded by solid rock or lie in rock basins. (Roy. Com.)

Rock bind (Eng.). Sandy shale. (Gresley)

Rock bottom. In well digging, a stratum of rock preventing further excavation; used generally in a figurative sense, and often attributively; as, a *rock-bottom* price. (Standard)

Rock bound (Aust.). A reef not accompanied by gangue stuff. (C. G. W. Lock)

Rock breaker. Usually applied to a class of machines, of which Blake's rock-breaker is a type, and in which the rock is crushed between two jaws, both movable, or one fixed and one movable. It is common to use a rock-breaker instead of hand-spalling to prepare ore for further crushing in the stamp-mill (Raymond). *See* Rock crusher.

Rock butter. A variety of halotrichite. Called also Stone butter. (Standard)

Rock channeler. A machine used in quarrying for cutting an artificial seam in a mass of stone. It is made in several forms, the principal types being the *bar-channeler* (in which the cutters are mounted on a carriage that works along a heavy bar or bars) and the *track-channeler*. (Standard)

Rock chute *See* Chute, 1. Also called Slate chute.

Rock-chute mining. *See* Bord-and-pillar method.

Rock cork. A light-colored variety of asbestos (Standard). Also called Rock leather.

Rock crusher. A machine for reducing rock or ore to smaller sizes. Three principal types are the jaw-crusher, the gyratory, and the hammer crusher. *See* Rock breaker.

Rock crystal. Transparent quartz, especially when colorless. (Webster)

Rock drill. A machine for boring in rock, either by percussion, effected by reciprocating motion, or abrasion, effected by rotary motion. Compressed air is the usual motive power, but steam, electricity and electricity in combination with compressed air are also used.

The following are common types: *Burleigh.* The first rock drill manufactured in the United States. A term applied by miners to any heavy two-man drill. *Chippy.* A name applied to small piston drills. *Jack hammer.* A name given by the manufacturer to the first self-rotating drill made in the United States. *Murphy.* A hollow steel hand drill; also called *Jap* or *Little Jap.* *Waugh.* A stoping drill; sometimes called a *stoper;* also known in the Southern States as a *warrior.* *Widow-maker.* a name applied to stoping drills by reason of the unhealthy effect of the dust on the miner's lungs. *Wiggle tail.* A name applied to a stoping drill, derived from its actions when in operation. (Eng. & Min. Jour., May 15, 1915, p. 861). *Water Leyner.* A type of drill using hollow steel through which water flows to remove and allay dust. Also called Leyner-Ingersoll drill.

Rocker. A short trough in which auriferous sands are agitated by oscillation, in water, to collect their gold. (Raymond). *See* Cradle, 3.

Rock-face brick. Brick with surface chiseled to imitate cut stone. (Ries)

Rock fault (Eng.). A replacement of a coal seam over a greater or less area, by some other rock, usually sandstone. (Gresley)

Rock filling. 1. Waste rock, used to fill up worked-out stopes to support the roof. (Weed)
2. *See* Overhand stoping.

Rock flour. Very finely powdered rock material, formed by the grinding up of rocks beneath a glacier, deposited as part of the till, and not washed or blown away and deposited elsewhere as stratified drift or as loess. (La Forge) Called also Glacier meal, and Rock meal.

Rock froth. Fused lava so inflated with gas bubbles or steam bubbles as to be foamy. When hardened it becomes *vesicular* or *scoriaceous lava.* (Standard)

Rock gas. Same as Natural gas.

Rock gypsum. Massive gypsum, sometimes crystalline, also microcrystalline or fine grained, as in alabaster. (Webster)

Rockhead. 1. (Scot.) In boring or sinking, the top of hard strata next the surface. (Barrowman) 2. (Ches.) The uppermost stratum of the rocksalt beds. (Gresley)

Rock house (Lake Superior). The building (usually the one over the shaft) where copper-bearing rock from the mine is dumped from the ore skip (or bucket) and is screened, crushed, and stored in a bin, ready for shipment to the mill. (Weed)

Rocking. The process of separating ores by washing on an incline trough. (Lawver) *See also* Rocker.

Rocking bob. *See* Bob, 1.

Rocking lever (Eng.). A brakestaff. (Gresley)

Rocking stone. A stone, often of great size, so balanced on its foundation that it can be rocked, or slightly moved with but little force. In some cases it is left in this position by the weathering away of the softer material (Webster). Called also Loggan stone.

Rock in place. *See* In situ.

Rock leather. A synonym for Mountain leather. (Chester)

Rock meal. 1. A fine flour-like earth composed of shells of infusoria. 2. A white powdery variety of calcite, occurring as an efflorescence (Webster). *See* Rock flour, 2. *Also* Rock milk.

Rock milk. Soft pulverulent forms of calcite found in caves or as an efflorescence. (Power)

Rock oil. A synonym for Petroleum.

Rock pulverizer. A rock breaker; stone crusher. (Standard)

Rock quartz. The ordinary crystallized varieties of quartz, as Brazilian pebbles. Called also Rock crystal. (Standard)

Rock rubble. Same as Fault rock. (Standard)

Rock ruby. A fine red variety of garnet. (Webster)

Rock salt. Common salt occurring in solid form as a mineral; halite. (Webster)

Rockshaft. A shaft made purposely to send down rock for filling the stopes, rooms, or slices. The shaft is generally kept nearly full, and th erock is trammed away as it is wanted. (Standard)

Rock silk. A silky variety of asbestos.

Rock soap. A pitch-black or bluish-black aluminum silicate, greasy to the touch, and which crumbles in water; used as a filler and for crayons. Called also Mountain soap. (Standard)

Rock tar. Crude petroleum. (Standard)

Rock tunnel. A tunnel, drift, or crosscut driven through rock, usually connecting one coal bed with another; also through barren rock in metal mines.

Rock turquoise. A matrix of turquoise with small grains of turquoise embedded in it. (Century)

Rockwood. A brown compact variety of asbestos, resembling fossil wood. (Standard)

Rod coupling. A clasp or other device for uniting the rods that carry the tools used in boring artesian wells, oil wells, etc. (Century)

Rodding (Eng.). The operation of fixing or repairing wooden cage guides in shafts. (Gresley)

Rod guide. An appliance attached to the drilling rod in oil wells that serves to prevent the rod from oscillating or knocking against the sides of the bore hole. (Mitzakis)

Rodillo (Sp.). A wooden roller for moving heavy weights. (Halse)

Rod iron. Iron made in the form of round iron rods for commercial use. (Standard)

Rodman; Rodsman. One who uses or carries a surveyor's leveling rod. (Standard)

Rodney (Eng.). A rude platform near the shaft's mouth for a night fire. (Bainbridge)

Rods. 1. (Eng.) Vertical or inclined timbers for actuating pumps. 2. Long bars of Swedish iron of the toughest quality, for boring through rocks, etc. 3. *See* Cage guides, 1. (Gresley)

Rod shaft. The mine shaft containing the pump rods. (Davies)

Rod tools. *See* Pole tools.

Rod-wax. A light-yellow, pasty mass consisting of an emulsion of high-boiling oils with solid hydrocarbons; it collects in considerable quantities around the rods and casing in some of the Pennsylvania wells. (Bacon)

Roesing lead-pump. An automatic apparatus for discharging lead from the kettle. Used in Parkes' process. (Hofman, p. 480)

Roesing wires. Wires suspended in a dust chamber to assist in settling and condensing dust and fumes from furnace gases. (Hofman, p. 392)

Roesler process. A process for separating copper, and in part silver, from gold by fusing with sulphur or with antimony sulphide, obtaining copper or silver sulphide. (Goesel)

Roe stone. Fine-grained oölite, that resembles the roe of a fish. (Power)

Rogenstein (Ger.). Oölite in which the spherules are united by argillaceous cement. (Standard)

Roggan. A rocking stone. (Century)

Roily oil. Crude oil that has formed a more or less complete emulsion with water. (Redwood)

Rojo (Sp.). Red. (Halse)

Roke (Prov. Eng.). A vein of ore. (Standard). A variation of Rake. *See* Rake 3 and 4.

Roldana (Sp.). A pulley wheel or sheave. (Halse)

Roll. **1.** An inequality in the roof or floor of a mine. **2.** (So. Wales) The drum of a winding engine. **3.** *See* Bump. (Gresley) **4.** A cylindrical body set in bearings (usually fixed) and used singly or in pairs or sets for crushing or squeezing (Webster). *See* Rolls. **5.** One of two cylinders or grooved rollers between which material is drawn, as for reducing its thickness, as the finishing *rolls* of a rolling mill. **6.** A heavy metal cylinder for flattening molten plate glass into a sheet. (Standard)

Rolled plate. A thin plate of gold spread upon a layer of base metal by soldering the metals in the bar, and then rolling the whole out into plate, forming a thinner plate of gold than that of the ware known as gold-filled. Called also Rolled gold. (Standard)

Roller. A small steel, iron, or wooden wheel or cylinder upon which the hauling rope is carried just above the floor. (Steel)

Roller grip. A device for clutching a traction cable between grooved sheaves or rollers. (Standard)

Rolley (No. of Eng.). A kind of truck running upon wheels for carrying tubs or boxes, and drawn by horses along underground roadways. (Gresley)

Rolleyway (No. of Eng.). The underground road along which rolleys are conveyed (Gresley). A gangway.

Rolleyway man (Eng.). A man who attends the rolleyway and keeps it in order. He also supervises the movement of cars at shaft landings. (G. C. Greenwell)

Rolling. *See* Roll train.

Rolling ground. A land surface much varied by many small hills and valleys. (C. and M. M. P.)

Rolling mill. **1.** An establishment in which metal is made into sheets, bars, rails, or rods, by working it between pairs of rolls. **2.** A pair or set of rolls between which metal is reduced in thickness or formed into beams, rails, etc.; a roll train. (Standard)

Rolling plant. A rolling mill or establishment for rolling metal into forms. (Standard)

Roll-jaw crusher. A crusher of the same general type as the Blake or Dodge (which *see*), but the moving jaw has a rolling instead of an oscillating motion. (Liddell)

Roll latten. Sheet brass polished on both sides. (Standard)

Rolls. Cast-iron cylinders, either plain or fitted with steel teeth, used to break coal and other materials into various sizes (Steel). Applied to the type of crushing machinery in which the ore is broken between cylindrical rolls which rotate in a vertical plane. *See also* Roll train.

Roll scale. The scale that falls from iron during the process of rolling. (Standard)

Roll shell. The casing or tire of specially hardened steel forming the wearing surface of a crusher roll. (Richards, p. 66)

Roll sulphur. A commercial name for sulphur that has been purified and cast into rolls or sticks. (Standard)

Roll train. The set of plain or grooved rolls through which iron or steel piles, ingots, blooms, or billets are passed, to be rolled into various shapes. (Raymond)

Rolo. (Sp.) **1.** A roller or drum; *R. de porta cable* (Mex.), the bearing drum of cable tramway. (Dwight)
2. A smooth and round long stone found in *arroyos*. **3.** A coil of fuse. (Halse)

Romaneador (Mex.). A weigher. (Dwight)

Romanium. An alloy consisting of aluminum having an admixture of less than 10 per cent of tungsten together with a little copper and nickel. (Webster)

Roman ocher. A native ocher of a deep orange-yellow color. (Standard)

Roman tile; Roman brick. Brick usually either dry-pressed or stiff-mud repressed, and 12 by 1½ by 4 inches in size. The term is not always very definitely used. (Ries)

Roman vitriol. Same as Blue vitriol.

Romanzovite. A variety of garnet, of a brown or brownish-yellow color. (Century)

Romper (Sp.). **1.** To break or crush ore. **2.** To pierce or penetrate; to break through. (Halse)

Rondana (Mex.). Gasket; washer. (Dwight)

Rondle; Rondelle. The crust or scale that forms upon the surface of molten metal in cooling. (Raymond)

Rongueros (Peru). Men and boys who carry *capachos*. (Halse)

Roof. **1.** The rock lying above a coal bed or ore vein. The hanging wall. (Chance)
2. The top of any subterraneous passage or working. (Gresley)
3. (No. Wales). In slate quarrying, a passage excavated from below upwards; a raise. (Webster)

Roof coal (Scot.). That part of a seam of coal left for a roof. (Barrowman)

Roofing. **1.** (Ches.) The upper 5 or 6 feet of the rock-salt beds. (Gresley)
2. The wedging of a loaded wagon or horse against the top of an underground passage. (Raymond)

Roofing slate. A finely fissile, compact, homogeneous argillite or clay slate, yielding thin slabs, used for roofing. The prevailing colors are nearly black, though sometimes greenish, purple, or red. (Standard)

Roofing tile. Burned-clay tile used for covering roofs. (Ries)

Roof stone (Scot.). The stone immediately above a coal seam (Barrowman) *See also* Roof, 1.

Roof work. A term applied to a vein worked overhead. (Morine)

Room. **1.** A wide working place in a flat mine corresponding to *stope* in a steep vein. *Compare* Stope (Ihlseng). A chamber.
2. A heading or short stall. **3.** A weight of 7 tons of coal, or 5½ chaldrons by measure. (Gresley)

Room and pillar. A system of mining in which the distinguishing feature is the winning of 50 per cent or more of the coal or ore in the first working. The coal or ore is mined in rooms separated by narrow ribs or pillars. The coal or ore in the pillars is won by subsequent working, which may be likened to top slicing, in which the roof is caved in successive blocks. The first working in rooms is an advancing and the winning of the rib (pillar) a retreating method. The rooms are driven parallel with one another, and the room faces may be extended parallel, at right angles, or at an angle to the dip. This method is applicable to flat deposits, such as coal, iron ore, lead, and zinc, etc, that occur in bedded deposits. Modifications of this method are: County of Durham system; Double-entry room and pillar mining; Double-room system; Double stall working; Heading and stall; Pillar and stall; Post and stall; Room and stoop; Single-entry room and pillar mining; Single-stall working; Square work; South Staffordshire thick-seam method; Stall and breast; and Triple-entry room and pillar mining

Room and pillar with waste filling. *See* Overhand stoping.

Room and rance (Scot.). A system of working coal with long narrow pillars; less usually a system of working with extra large pillars and narrow rooms (Barrowman). Similar to pillar and stall.

Room and stoop (Scot.). *See* Room and pillar.

Room neck. A short passageway, from the mine entry, to the room in which the miner works. (Gambino *v.* Manufacturers' Coal & Coke Co., 164 S. W. Rept., p. 265)

Room system with caving. *See* Bord and pillar.

Rooster coal. *See* Cube coal.

Root deposit (Malay). A lode or vein from which alluvial tin may have been derived. The original source.

Roove (Eng.). To rub or knock against the roof. (Gresley)

Rope crab. An appliance used in cable drilling for recovering ropes that may have been accidentally dropped in the borehole. (Mitzakis)

Rope drilling. 1. Drilling in the ground with a bit attached to the end of a rope to which a twisting motion is given. Sometimes called Jump drilling, as the rope with the bit is raised and dropped.

Rope drive. A replacement of belts by ropes for driving machinery. (Power)

Rope driver. A person who looks after the rope and the equipment of the train of cars drawing coal from the mine, and superintends the movement of cars. (Stony Fork Coal Co., *v.* Lingar, 153 S. W. Rept., p. 6; Bell-Knox Coal Co. *v.* Gregory, 153 S. W. Rept., p. 465)

Rope haulage. Any haulage system in which the cars are attached to ropes. Usually employed on level or nearly level roads or entries; sometimes with an endless rope. *See* Tail-rope haulage.

Rope house. In salt manufacturing, an evaporating house. (Century)

Rope rider (Okla.). An employee whose duty it is to see that cars are coupled properly, and to inspect ropes, chains, links, and all coupling equipment. A trip rider.

Rope roll (Eng.). The drum of a winding engine. (Gresley)

Rope trip. A trip of cars handled by a rope. (Steel)

Ropeway. A line or double line of suspended ropes, usually wire, along which articles of moderate weight may be transported on slings, either by gravity or power; much used in mountainous mining districts for transportation to watercourses or to steam-railway lines (Standard). An aerial tramway.

Ropp furnace. A long reverberatory furnace over the hearth of which a series of plows or rakes is drawn by a continuous cable, moving the ore steadily from the feed to the discharge end. (Ingalls, p. 104)

Ropy lava. Same as Pahoehoe.

Rosca (Sp.). 1. Screw thread. 2. A ring or washer put around a drill when water is present. 3. In the *patio* process, silver left after retorting. (Halse)

Roscoelite. A vanadium-bearing muscovite mica in which Al_2O_3 is partly replaced by V_2O_3. The content of V_2O_3 may reach an equivalent of 28.85 per cent V_2O_5, though generally much less. (U. S. Geol. Surv.)

Rose. 1. (Scot.) The perforated nozzle of a water pipe. (Barrowman) 2. A diamond of such small size that it can be cut little if at all. (Webster)

Roseaker. An old name for Realgar. (Century)

Rose copper. Same as Rosette copper.

Rose head. A perforated nozzle, as for a sprinkler (Standard). *See* Rose, 1.

Rose porcelain. Chinese hard-porcelain brilliantly decorated with a red enamel. (Standard)

Rose quartz. Crystalline quartz with a rose-pink color. Used as gem or as an ornamental stone. *See* quartz. (U. S. Geol. Surv.)

Rose steel. A steel that shows a peculiar fracture and texture in the interior different from that near the surface. (Standard)

Rosette. A disk-like crust or plate of metal purposely formed on and removed from the surface of molten metal (Standard). *See* Rosette copper.

Rosette copper. Disks of copper (red from the presence of suboxide) formed by cooling the surface of molten copper through sprinkling with water (Raymond). Called also Rose copper.

Rose vitriol. Cobalt sulphate; bieberite. Also called Cobalt vitriol; Red vitriol. (Standard)

Rosh (Leic.). *See* Ralt.

Rosicler (Sp.). 1. Ruby silver; *R. claro*, proustite; *R. negro*, stephanite; *R. oscuro*, pyrargyrite. 2. *R. de cobre* (Chile and Peru), cuprite. (Halse)

Rosin jack. A yellow variety of sphalerite. (Power)

Rosin tin. A reddish or yellowish variety of cassiterite. (Power)

Ross and Welter furnace. A multiple-deck roasting furnace of the annular type. Used in Germany. (Ingalls, p. 110)

Rossie furnace. An American variety of hearth for the treatment of galena, differing from the Scotch hearth in using wood as fuel, working continuously, and having hollow walls, to heat the blast. (Raymond)

Rosso antico marble. A red marble used by the Etruscans and ancient Romans; said to have been obtained from Cynopolis and Damaristica (Merrill). It has white markings and fine black veins.

Rosso levanto marble. *See* Verdantique.

Rosterite. A variety of pale rose-red beryl found in the granite of the Island of Elba, Italy. (Century)

Rosthornite. A resin ($C_{24}H_{40}O$) possessing a brown color and a specific gravity of 1.076, found at Sonnberge, Carinthia. (Bacon)

Rotary fault. *See* Fault.

Rotary puddler. A mechanical puddler in which the treatment of molten metal is effected by the rotation of the furnace. (Century)

Rotary pump. A pump in which the moving part is a piston, follower, or cam, rotating in a case, as distinguished from one that has a piston with to-and-fro motion (Standard). A centrifugal pump.

Rotary squeezer. A puddle-ball squeezer having a rotating drum mounted out of center in a cylindrical case. (Standard)

Rotator. A revolving or rotary furnace. (Century)

Rotch. *See* Rotche.

Rotche; Roche (So. Staff.). A soft and moderately friable sandstone (Gresley). Called also Roach; Rotch.

Rothoffite. A yellowish-brown to liver-brown, magnesian calcium-iron garnet. (Dana)

Rotten reef. (So. Afr.). Decomposed, soft, country rock found in connection with auriferous conglomerates. (Duryee)

Rottenstone. 1. A soft, light, earthy substance, consisting of silica in fine grains, resulting from the decomposition of siliceous limestone. (Roy. Com.).

Rouge antique marble. *See* Rosso antico marble.

Roughcast. 1. A kind of plaster made of lime, with a mixture of shells or pebbles, used for covering buildings. (Webster)
2. To roughen the surface of (pottery) before firing. (Standard)

Rough coal (Scot.). A name sometimes given to free coal when associated with gas coal or splint coal. (Barrowman)

Rough diamond. An uncut diamond.

Rougher cell. Flotation cells in which the bulk of the gangue is removed from the ore.

Roughing hole. A hole to receive slag from a blast-furnace, or molten iron when it is undesirable to let it run into pigs. (Standard)

Roughing mill. 1. A metal disk charged with an abrasive, used for the first work in grinding gems. 2. A set of roughing rolls. (Standard)

Roughing rolls. The rolls of a train which first receive the pile, ingot, bloom, or billet, and partly form it into the final shape (Raymond). Called also Breaking- or Roughing-down rolls.

Roughs; Rows (Corn.). Coarse, poor sands, resulting from tin dressing (Raymond)

Roughsetter. A building mason employed on coarse work. (Standard)

Roughway (Corn.). A quarry term to designate a direction along which there is no natural cleavage in a rock. *See* Cleaving way, and Quartering way. (Greenwell, p. 81)

Round coal (Eng.). Coal in large lumps, either handpicked or after passing over screens. (Gresley)

Round-edge slip. *See* Slip stone.

Rounder. 1. *See* Reamer, 1.
2, An indented cylindrical tool for rock-boring. (Standard)

Rounding-tool. A forming- or swaging-tool having a semicylindrical groove; a blacksmith's swage or collar-tool. (Standard)

Round ore. Same as Leap ore. (Standard)

Round ree (Scot.). A space at the shaft bottom where coal is stored. (Barrowman)

Roundstone. Small, roundish stones collectively, used for paving; cobblestone. (Century)

Round-strand rope. A rope made of round twisted-strands. (C. M. P.)

Row (pronounced *ro*). (No. Staff.) A seam or bed of coal. (Gresley)

Row (pronounced *row*) (Corn.). Large, rough stones. (Raymond)

Rowlandite. Yttrium silicate, $2Yt_2O_3.3SiO_2$. (U. S. Geol. Surv.)

Rows. *See* Roughs.

Royal agate. A mottled variety of obsidian. (Century)

Royal green. Paris green. (Webster)

Royalty. 1. (Eng.). The mineral estate or area of a colliery, or a portion of such property. A field of mining operations. (Gresley)
2. A seigniorage on gold and silver coined at the mint. 3. (Eng.). A percentage paid to the crown, of gold or silver taken from mines, or a tax in lieu of such share of the product or profit (Webster). *See* Acreage rent.
4. The amount paid by the lessee, or operator, to the owner of the land, mineral rights or mine equipment, based on a certain amount per ton or a per cent of total mineral production.

Rozan process. An improvement of the Pattinson process (Raymond). Also called Luce-Rozen process.

Rubasse (Fr.). A crystalline variety of quartz containing, distributed through it, spangles of hematite, which reflect a ruby red. Called also Ancona ruby; Mont Blanc ruby; *Rubace.* (Standard)

Rubber. 1. A gold-quartz amalgamator, in which the slime is rubbed against amalgamated copper surfaces. (Raymond)
2. (Scot.) A piece of wood for pump rods to slide on, or for hutches to rub on going round sharp curves. (Barrowman)
3. A bucking iron or bucking hammer. *See* Bucking.

Rubberide. A trade-name for an imitation of vulcanized rubber. (Century)

Rubberstone. A sharp-gritted Ohio or Indiana sandstone used for sharpening shoe knives; also called Shoestone (Merrill).

Rubbing bars (Aust.). Bars placed on the side of a cage nearest to the other cage when rope guides are used. The buffer ropes are placed outside for rubbing bars. (Power)

Rubbing bed. A circular disk of iron, or occasionally carborundum, rotating in a horizontal plane, upon which blocks of stone are placed in order to rub or grind away all irregularities. (Bowles)

Rubbing block. In marble working, a smoothing or polishing block. (Standard)

Rubbing brick. A heavy, coarse-grained stone generally artificial, used principally for rubbing down rough castings, smoothing concrete work and for dressing marble and granite. (Pike)

Rubbing stone. A gritstone for smoothing tool marks, etc., out of building stone, bricks, etc. (Standard)

Rubbing surface. The total area of a given length of airway; that is, the area of top, bottom, and sides added together, or the perimeter multiplied by the length. (Steel)

Rubbish (Eng.). Fallen stone from the roof; holing débris made in sinking, drifting, etc. (Gresley). Waste.

Rubble. 1. Water-worn or rough-broken stones, broken bricks, etc., used in coarse masonry. 2. Rough stone as it comes from the quarry. 3. A quarryman's term for the upper fragmentary and decomposed portion of a mass of stone; brash. 4. (Eng.) A hard chalk used in making paths. (Webster)

Rubble ashlar. Ashlar masonry with rubble backing. (Webster)

Rubble drift. A coarse agglomeration of angular débris and large blocks set in an earthy matrix of glacial origin. (Century)

Rubble ice. Ice in broken fragments, as in the Arctic seas. (Webster)

Rubble masonry. Rough, unsquared stone laid in irregular courses. (Merrill)

Rubbles (Eng.). Slack or small coal. (Gresley)

Rubble stone. 1. (Eng.). A name given by Kirwan to graywacke (Humble).
2. *See* Rubble.

Rubble work. Masonry composed of irregular or broken stone or fragments of stone mingled with cement or clay (Standard). Called also Rubble masonry.

Rubbly reef (Aust.). A vein much broken up. (Duryee)

Rubellite. Dark-pink or red tourmaline.

Ruberite. Same as Cuprite. (Century)

Rubi (Sp.). Ruby, a variety of spinel. (Halse)

Rubidium. A soft silvery metal which decomposes water with violence and inflames spontaneously in air. An alkali metal closely resembling potassium in general properties. Symbol, Rb; atomic weight, 85.45; specific gravity, 1.52. (Webster)

Rubio (Sp.). Limonite or brown hematite. (Halse)

Ruble. The monetary unit of Russia, equivalent to 51.5 United States cents. (Century)

Rubstone. A whetstone; also stone suitable for making whetstones. (Standard)

Ruby. Clear red corundum, Al_2O_3. A well-known gem. (U. S. Geol. Surv.)

Ruby arsenic. An early name for realgar (Chester). *See* Ruby sulphur.

Ruby blende. A red or brownish-red variety of transparent crystallized sphalerite (Standard). *See also* Ruby zinc.

Ruby copper. An early name for cuprite, from its color. (Chester)

Ruby luster. In ceramics, any red or reddish metallic luster. (Standard)

Ruby mica. An old synonym for Göthite. (Chester)

Ruby silver. *See* Proustite and Pyrargyrite.

Ruby sulphur. Same as Realgar (Standard). Called also Ruby arsenic; Ruby of arsenic; Ruby of sulphur.

Ruby zinc. A popular name for transparent sphalerite of a deep-red color, and also for zincite with the same characteristics. (Chester)

Ruck. 1. (Lanc.) The stock of coal on the bank. (Gresley)
2. A streak of pyrite in roofing slates. (Power)

Rud (Prov. Eng.). Red ocher. (Standard)

Rudding (No. of Eng.). The act of clearing away refuse rock.

Ruddle (Eng.). A common term meaning red, for a red variety of iron ore. (Roberts)

Rueda (Sp.). 1. A wheel. 2. *R. de mecha*, a coil of safety fuse. 3. (Mex.) A rounded mass of silver ore. (Halse)

Ruin (Eng.). A term occasionally employed in familiar description for certain minerals whose sections or cut faces exhibit the appearance of ruined buildings, as Ruin agate, Ruin marble, etc. (Page)

Ruin agate. *See* Ruin.

Ruiniform. Having the form or appearance of ruins, as certain minerals.

Ruin marble. *See* Ruin.

Rull (Eng.). To wheel or trundle, as ore. (Webster)

Ruller (Corn.). A workman who wheels ore in a wheelbarrow underground. (Raymond)

Rumanite. A yellow amber-like resin obtained from Rumania. (Bacon)

Rumbadero (Colom.). An ore chute or ore pass. (Halse)

Rumbo (Sp.). Direction; strike of a vein. (Dwight)

Rumbón (Colom.). 1. An automatic inclined plane. 2. An inclined chute for ore or timber. (Halse)

Run. 1. Direction, as of a vein. 2. Caving in of a working, etc. 3. A fall of the cage in a shaft due to a failure in the hoisting apparatus. 4. An inclined passage between levels. 5. A settling trough for slimes. 6. An irregular ore body. 7. Horizontal distance to which a drift is or may be carried. 8. In quarrying, a direction of secondary or minor cleavage grain. *See* Rift. (Webster)
9. The length of time reduction works or a mine is kept in operation without stopping to clean up, make repairs, or for other purposes. (Hanks)
10. By the run. A method of paying coal miners per linear yard of breast excavated instead of by the amount of clear coal produced. (Raymond)
11. A journey. 12. A word commonly made use of to express the degree of leverage or breaking-down power of a shot. 13. (Eng.) To work a winding, or other, engine.

14. Soft ground is said to "run" when it becomes mud and will not hold together or stand. (Gresley)
15. To make by pouring melted metal into molds; mold; found. **16.** An act of flowing, or that which flows. Especially: (a) The quantity that flows at one time or during one operation or period; as, a *run* of iron in a melting-furnace. (b) A single operation of pouring or casting in a foundry. (Standard)
17. (Corn.) To quit a piece of work before it is quite finished. (Pryce)

Runaround. A passage driven in the shaft pillar to enable men and animals to pass safely from one side of the shaft to the other side. *See* Bye-pass, 1.

Runaway switch (Aust.). A switch by means of which a runaway car can be sidetracked. (Power)

Run-back water (Scot.). Water from a set of pumps that is run back and pumped up again in order to keep the pump from going "on air" while the other pumps are at work. (Barrowman)

Rung; Rundle; Round. A step or crossbar of a ladder. (C. and M. M. P.)

Runnel. A rivulet or small brook. (Duryee)

Runner. 1. The channel through which molten metal is conducted from the blast furnace or cupola to the pig bed, converter, or molds. *See* Pig iron. (Raymond)
2. (Eng.) A movable bridge or platform over the mouth of a shaft. Also called Jiddy. **3.** A fault slip. **4.** A crowfoot. **5.** (York.) A flat piece of timber placed above bars, and connecting them. **6.** (Leic.) The piece of timber placed in a horizontal position between the two inclined sprags in cokermegs. (Gresley)
7. (Scot.) A man or boy who goes with a train of cars in mechanical haulage. (Barrowman)
8. A steel-shod poling board, driven into unbroken but loose ground as excavation progresses. (Webster)
9. A man or boy who runs the loaded cars by gravity from the face of a room or chamber to the haulage road, controlling the speed by means of a brake or sprags. **10.** An engineman; a machine runner. **11.** A stone slab or rubber moved over a stone surface to polish it. **12.** A horizontal channel in the sand of a mold from the bottom of the gate to the space left by the pattern. **13.** Any pouring-gate. **14.** The metal left in such channel attached to the casting and requiring removal. (Standard)
15. (So. Staff.) A runaway cage or skip, due to failure of brakes or breaking of cable. (Min. Jour.)

Runner-on. *See* Bottomer.

Runner stick. A slightly tapering round stick, used as a pattern for the opening through which molten metal is to be poured into the mold. (Standard)

Running amain (Scot.). The running of a winding rope down into the shaft, due to failure of brake or other appliances. (Gresley)

Running balk (Eng.). A set of timbers in the direction of a drift (at its side instead of across it) to form a support for the crosspieces. A running balk at each side, with balks or planks supported by them, is the common method of timbering through an old bord or place where the roof has fallen badly. (G. C. Greenwell)

Running bridge (Aust.). A platform, on wheels, that serves as a cover for a shaft in process of sinking, and on which buckets or skips are landed. *See* Runner, 2. (Power)

Running ground. Superincumbent material that breaks off readily and falls into the mine openings. (Weed). Earth and rock that falls, runs, or caves in (Standard). Quicksand.

Running gug (Som.). A self-acting incline. (Gresley)

Running kiln. A lime kiln that is fed from above, and delivers continually below. (Standard)

Running lift (Eng.). A sinking set of pumps so constructed as to lengthen or shorten, at will, by means of a sliding or telescopic water column. (Gresley)

Running measures (Eng.). Sand and gravel containing much water. (Gresley)

Running-off. In founding, the opening of the tap hole of a blast furnace and allowing of the molten metal to flow out to the molds. (Standard)

Running roll. A cylinder used in plate-glass manufacturing for spreading the soft glass on the casting table. (Standard)

Running rope. A flexible rope that will pass through blocks, and used for lifting or for moving heavy objects.

Running sand. Quicksand.

Running the drum (Eng.). The lowering or sinking of a cylinder or drum through quick ground, to secure the upper part of a mine shaft. (Gresley)

Run-off. 1. That part of the natural precipitation that flows off the surface of the land in the form of visible streams. (Watson, p. 244)
2. To cause the contents of to flow off or out; as, to *run-off* a millpond or a smelting furnace. (Standard)
3. The collapse of a coal pillar in a steeply pitching seam, caused either naturally or by a small shot placed in it. This occurs in connection with pillar robbing, and the pillar is said to have *run-off*.

Run of lode (Corn.). Its direction or course. (Min. Jour.)

Run of mine. Coal as it is dug in the mines, including lump and fine coal together, without any preparation or screening. (Nicolls)

Run of ore. *See* Shoot of ore.

Run of the rock. Same as Run, 8. A direction of easy splitting in a rock, but subordinate in ease to the rift direction. (Bowles)

Run-out fire. A forge in which cast-iron is refined. (Raymond)

Run rider (Eng.). A lad who goes with a train (trip) on an engine plane (Gresley). A trip rider.

Runs (Eng.). Percentage of metal in the ore (Skinner). The ore *runs* (contains) 10 per cent copper.

Run-steel. Malleable castings. (Raymond)

Run-the-tow. 1. (Scot.). To cause the cages to traverse the shaft preparatory to allowing men to descend. (Barrowman)
2. (Scot.) Sliding down the shaft on the winding rope. (Gresley)

Rush. 1. A moving forward with rapidity and force (Webster). As a rush of ore.
2. (Scot.). The sudden weighting of the roof when robbing the pillars begins. (Gresley)
3. A sudden movement of a large number of miners to some new locality. *See* Stampede. (Hanks)
4. *See* Spire, 1.
5. (Aust.). An area containing gold, and hence causing miners to rush for it. (Standard)

Rusher. One who rushes into a region when it is first opened to settlement, or, on a discovery of precious metal (Standard). A Stampeder.

Rush gold. Gold coated with oxide of iron or manganese (C. and M. M. P.). Rusty gold.

Rusks (No. of Eng.). Small slack, or that coal next larger than dust. (Gresley)

Russell process. A metallurgical process similar to the Patera process, which *see*, except that cuprous-sodium hyposulphite is used in addition to the sodium hyposulphite. (Liddell)

Russia iron. A high-grade, smooth, glossy sheet-iron, not liable to rust, once made by a process that was long a secret with Russian manufacturers. The sheets were subjected to severe hammering in piles with powdered charcoal between them. (Standard)

Russol. A trade name for liquid petrolatum. (Bacon)

Rust. 1. The reddish or yellowish coating caused on iron or steel by oxidation, as by the action of air and moisture, consisting of ferric hydroxide and ferric oxide, or red oxide of iron; in an extended sense, a film or oxide formed on any metal by corrosion. 2. A mixture of iron-filings, ammonium chloride, and sometimes sulphur, moistened and placed between iron surfaces, where it hardens by oxidation, and forms a solid joint called a *rust*-joint. (Standard)

Rust ball. 1. A lump of yellow iron ore found in the chalk, in Cambridgeshire, England. 2. Such material collectively. (Standard)

Rustic ware. Brown, glazed, buff, or light-brown terra-cotta, sometimes green mottled: used for ornament in construction. (Standard)

Rustle (Local U. S.). In brickmaking, to increase the heat of (a kiln). (Standard)

Rusty. 1. Covered or affected with rust. 2. Impaired by inaction, disuse, or neglect. 3. Rust colored: dark. (Webster)
4. Applied to coal discolored by water or exposure, as well as to quartz, etc., discolored by iron oxide. (Raymond)

Rusty gold (Cal.). Free gold, that does not readily amalgamate, the particles being covered with a siliceous film, thin coating of oxide of iron, etc. (Hanks)

Rute. 1. In mining, thread-like veins of ore. (Standard)
2. (Derb.) *See* Scrin, 2.

Ruthenium. A rare element of the platinum group, associated with platinum ores, and separated as a hard, brittle, steel-gray metal, very infusible and almost insoluble in acids. Symbol, Ru; atomic weight, 101.7; specific gravity 12.26. (Webster)

Rutile. Tetragonally crystallized titanium dioxide, TiO_2. Octahedrite is another tetragonal form with different facial angles. When crystallized in orthorhombic form titanium dioxide is known as brookite. (Dana)

Rutilated quartz. Quartz penetrated by needles of rutile. (A. F. Rogers)

Ruttles (York.). Shattered and faulty ground running roughly parallel to the plane of a fault. (Gresley)

S.

Sabana (Colom.). An alluvial mine on a river bank above the level of the water. (Halse)

Sable iron. A superior kind of Russian iron originally stamped with the figure of a sable. (Webster)

Sabotage (Fr.). Malicious waste or destruction of an employer's property by workmen during labor troubles. (Webster)

Saca (Sp.). 1. Exportation. 2. Extraction of the gold from auriferous sands. 3. (Mex.) Ore raised from a mine in a given time. 4. (Mex.) An ore sack. 5. *Mina de saca* (Colom.), an alluvial mine in which the pay gravel or sand is below water level. (Halse)

Sacabuches (Sp.). Hand pumps. (Min. Jour.)

Sacado (Colom.). Filled-up stopes. (Halse)

Sacar (Sp.). To draw or bale out; *S. con bomba*, to pump; to extract ore from a mine. (Halse)

Saccharoidal. Having a granular texture resembling that of loaf sugar; said of some sandstones and marbles. (La Forge)

Saccharoidal marble. Any marble having a granular crystalline structure like that of loaf sugar. (Merrill)

Saco (Sp.). 1. A sack or bag. 2. *Criaderos en saco*, irregular deposits of ore filling superficial cavities or crevices. (Halse)

Saddle. 1. (Aust.) A formation of gold-bearing quartz occurring along the crest of an anticlinal fold. 2. A ridge connecting two higher elevations; a low point in the crest line. (Webster) A ridge whose strata dip away downward from the central axis on each side; an elevated anticlinal fold.
3. "A saddle is a peculiar formation found in shale or sand rock in the roof of a mine. The under or exposed side looks like natural rock, but its upper side is smooth, having no particular bond with the sand rock with which it is embedded, and is liable to fall out of its place, a fall, however, producing no other derangement of the surrounding parts of the room from which it falls" (Lehigh Valley Coal Co. *v.* Washko, 231 Fed. Rept., 42, p. 48). *See* Kettle bottom, which would seem to be a better term.

Saddle back. 1. A hill or ridge having a concave outline at the top. (Webster)
2. (Eng. and Scot.) A roll or undulation in the roof or pavement of a seam (Barrowman). *See also* Saddle, 3.
3. Two timbers placed so as to form an inverted V and used as a support for a load above. (Sanders, p. 45)

Saddler. A man employed to make and repair harness, etc., for the draft animals at a mine.

Saddle reef (Aust.). A bedded vein that has the form of an anticline; an *inverted saddle* has the form of a syncline. *See* Saddle, 1. (Power)

Saddle shaped. In the form of an anticlinal fold. (Webster)

Safeguards. The precautions taken to prevent men from being injured; guard rails, automatic signals, warning signs, etc.

Safety cage. A cage, box, or platform used for lowering and hoisting miners, tools, etc., into and out of mines, and which is provided with a "safety clutch," an automatic device for preventing the fall of the cage if the supporting cable breaks. (Hanks)

Safety car. 1. Any mine car or hoisting cage provided with safety stops, catches or other precautionary devices.
2. (Penn.) A barney; a small car used on inclined planes and slopes to push up a mine car. (Century)

Safety catch. An automatic device for preventing the fall of a cage in a shaft or a car in an incline if the supporting cable breaks. (Raymond)

Safety chain (Scot.). A chain connecting the first and last cars of a trip to prevent separation, if a coupling breaks. (Barrowman)

Safety detaching-hook. A self-acting device that releases the cage from its hoisting rope in case of an overwind. (Power)

Safety door. A strongly constructed door hinged to the roof of the mine, and always kept open and hung near to a main door, for immediate use in case of damage by explosion or otherwise to the main door. (Gresley)

Safety first. A term often applied to accident prevention methods, and first-aid and rescue work. As a slogan, was first used nationally by Dr. Joseph A. Holmes, the first director of the U. S. Bureau of Mines, at the national mine safety meet in Pittsburgh, Pa., in 1911. A Middle West steel company claims to have originated the expression, but it did not come into national use until taken up by the Bureau of Mines. The bureau, unconscious of its use in any other place, made up the slogan from a program of the H. C. Frick Coal & Coke Co., for a safety meet which stated "Safety ahead of output," "Safety ahead of dividends," "Safety the first consideration." The Bureau of Mines shortened these expressions into "Safety first."

Safety fuse. A fuse consisting of a cotton or hemp tube holding a slow-burning composition for exploding charged blast holes. Commonly called Fuse. (Webster)

Safety gate. An automatically-operated gate placed at the top of a mine shaft, or at landings, to guard the entrance, to prevent anyone from falling into the shaft.

Safety hook. 1. *See* Safety detaching-hook. 2. A hook, shut by a spring or other device, to prevent an article from being accidentally or forcibly detached from a chain. 3. A safety catch in a mine hoist. (Standard)

Safety lamp. A lamp, the flame of which is so protected that it will not immediately ignite fire damp. There are several varieties, invented by Davy, Stephenson, Clanny, and others (Raymond). The flame is generally surrounded by a cylindrical covering of wire gauze, that protects the surrounding atmosphere from being fired, even though the gases within the lamp have reached the explosive proportions. When fire damp enters the lamp it burns, forming a bluish "cap" over the lamp flame, whence safety lamps are used in testing for this gas. The foregoing is a flame safety lamp as distinguished from the electric safety lamp in which the gas can not come in contact with the incandescent filament that produces the light. *See* Electric safety lamp. For a history of the safety lamp *see* Trans., Institution of Mining Engineers (England), vol. 51, pp. 548–724.

Safety plug. In steam boilers, a bolt having its center filled with a fusible metal, screwed into the top of the fire box so that when the water becomes too low the increased temperature melts out the metal, and thus admits steam to the fire box to put out the fire. (Century)

Safety powder. A term used for short flame explosives before the introduction of permissible explosives.

Safety stop. 1. On a hoisting apparatus, a check by which a cage or lift may be prevented from falling. (Standard)
2. An automatic device on a hoisting engine designed to prevent overwinding.

Safety tools. Consist of catching hooks, grappling tongs, fish-heads, bell-screws, and the like, for recovering broken boring tools, picking up material, etc., at the bottom of bore holes. (Gresley)

Sag. 1. A depression in a coal seam. (Steel)
2. To sink in the middle by weight, below a horizonal line, as a cable when supported at both ends. (Webster)

Sagene; Sajene. A Russian measure of length of 7 ft., or 2.134 meters. (Webster)

Sagenitic quartz. Quartz containing included acicular crystals of rutile (then called *Venus's hairstone*) or sometimes similar crystals of black

tourmaline, goethite, stibnite, asbestos, actinolite, hornblende, and epidote. (Standard)

Sagger. 1. In ceramics, a box made of fire clay in which delicate pieces are placed while being baked. Spelled also Saggar; Saggard; Seggar; Sagre. 2. The clay of which saggers are made. 3. A box in which cast-iron articles are placed in contact with hematite or smithy scales, to be rendered malleable by decarbonizing in the annealing furnace. (Webster)
4. A local term for fire clay, often forming the floor (or thill) of coal seams.

Sagre; Seggar. *See* Sagger.

Sagvandite. A curious rock from near Lake Sagvand, Norway, that is mainly bronzite and magnesite. A little colorless mica, and more or less chromite and pyrite are also present. The name was given by Petterson. (Kemp)

Sahiu (Port.). A blown-out shot. (Halse)

Sahlite. A variety of pyroxene. The term is sometimes prefixed to rock names. (Kemp)

Sailor. A term sometimes employed for rigger, painter, or structural worker at blast furnaces. (Willcox)

Saint Anne marble. A deep blue-black white-veined marble from Biesme, in Belgium. (Merrill)

Saint Baume marble. A yellow stone veined with brown or red; from the province of Var, France. (Merrill)

Saint Peter's sandstone. An early Ordovician formation in Wisconsin and Minnesota. (Webster)

Saint Quirinus oil. Petroleum used medicinally in Germany as early as 1436, the supply coming from the Tegernsee district of Bavaria. (Bacon)

Sal (Sp.). 1. Salt; *S. piedra*, rock salt; *S. de manantiales*, brine salt; *S. de tierra*, salt mixed with earthy impurities; *S. marina*, sea salt; *S. mineral*, salt for amalgamation. (Halse)

Salamander. A mass of fused, but solidified, material in the hearth of a blast furnace, usually largely metallic iron, partly reduced ore, etc. Called also Bear, Sow, or Shadrach. In copper smelting it contains metallic copper and matte.

Salamanders' hair. Asbestos. (Standard)

Sal ammoniac. Ammonium chloride, NH_4Cl. (Dana)

Salamstone. A variety of sapphire, usually in small, transparent, hexagonal prisms of pale-red or blue, found chiefly in Ceylon. (Standard)

Salina; Salar (Chile). A saline deposit. (Halse)

Salband. A term current among miners for the parts of a vein or dike next to the country rock. (Kemp)

Salbanda. 1. (Mex.) Slickensides. (Dwight)
2. (Sp.) Flucan; a thin layer of clay between the vein and wall rock. (Halse)

Salic. Pertaining to, or belonging in, the first or sal group of standard minerals, in the quantitative or norm classification of igneous rocks; often incorrectly used to mean persilicic, felsic, or leucocratic. (La Forge)

Saliferous. Containing a considerable proportion of salt in beds, or as brine; said of strata. (Standard)

Saliferous system. An old name for Triassic; So called because of its rich salt deposits in Europe. (Standard))

Salimeter. An instrument for measuring the amount of salt in a solution. (Webster)

Salina. 1. A salt marsh, or salt pond, inclosed from the sea. 2. Salt works. 3. A subdivision of the American Silurian, including the important salt beds in New York and adjoining beds; now obsolete. (Webster)

Saline. 1. A salt spring or well; salt works. (Raymond)
2. Applied to minerals having the taste of common salt. (Dana)

Saline dome. An up-swelling of the earth's surface on the coastal flats of Louisiana and Texas, one-fourth to one mile in diameter, often showing a marshy depression at the summit with escaping oil or gas, or both, around the periphery of the dome. The center is barren of vegetation, consisting of a nucleus of salt. (*See* Salt dome; *also* Dome, 5.

Salinero. 1. (Sp.) Applied to ores requiring much salt in amalgamation. 2. A dealer in salt; an owner of a salt mine or works. (Halse)

Salines. As used by Congress, includes not only salt springs but all salt lands of every character. (Southwestern Mining Co., In re, 14 Land Decisions, p. 600)

Saliniferous. Yielding salt, as a salt-bed. (Standard)

Salinometer. A hydrometer graduated to show the percentage of salt in a solution: used in one form to indicate the proportion of salt in a marine boiler (Standard). *See* **Salimeter.**

Saliter. Soda niter. (Standard)

Salites. A term employed by M. E. Wadsworth to include all salts and saline materials. (Power)

Salitral. A swampy place where certain salts, as saltpeter, become incrusted in the dry season. (Standard)

Salitre. 1. (Sp.) Saltpeter or nitrate of potassium. 2. (Chile) Sodium nitrate. (Halse)

Saller (Corn.). 1. A chamber in a mine. 2. A stage to work on. 3. A boarded channel for water to run in along the bottom of an adit. 4. The floor or stage on which the ladders rest in a shaft (Davies). Also spelled Solar, Sellar, Sollar, and Soller, *Sollar* being preferable.

Salmon brick. A class of brick embracing those not hard enough for outside walls, and including *soft*, *salmon*, *backing-up*, *pale*, *light*, *chimney*, *filling-in*, *inside wall*, and *foundry* brick. (Standard)

Salmuera (Sp.). Brine. (Dwight)

Sal-natron. Crude soda ash: so called by dyers, soap-makers, and others. (Standard)

Salón (Mex.). 1. A cavern containing ore; a chamber deposit. 2. A bunch of ore that has been worked out. 3. (Colom.) Any enlarged place in an adit, made in order to facilitate and simplify the work. (Halse)

Salse. Eruptions of hot acidulated mud from small orifices, generally in volcanic districts, and often accompanied by steam and gases at high temperature. (Power)

Salt. 1. Halite; common salt. Sodium chloride, NaCl. (Dana)
2. In chemistry, any class of compounds formed when the acid hydrogen of an acid is partly or wholly replaced by a metal or a metal-like radical; as ferrous sulphate ($FeSO_4$) is an iron salt of sulphuric acid, H_2SO_4. 3. To place gold, or any valuable ore in the ground, a mine, or the like to give a false impression of the richness of the property. To "salt" a mine. (Webster)

Salt block. 1. An apparatus for producing salt by evaporation. 2. A salt factory where the evaporating process is used; saltern. (Standard)

Salt bottom. A flat piece of alkali ground. (Webster)

Salt cake. Sodium sulphate obtained as a white caked mass, usually by heating common salt with sulphuric acid, and used in the manufacture of soda by the Leblanc process, in glass making, etc. (Webster)

Saltcat. A lump of salt made at a salt works. (Webster)

Salt cote. A salt pit. (Webster)

Salt dome. *See* Saline dome. These domes are formed by strata being lifted or swollen upward by the increase in volume of salt and sulphur during deposition. *Compare* Dome, 5.

Saltern. 1. A building or place where salt is made by boiling or by evaporation; salt works. (Webster)
2. A plot of clayey ground where salt is obtained by evaporating seawater in the sun; salt garden. (Standard)

Salt flour. Potassium nitrate in the form of fine crystals. (Webster)

Salt furnace. A simple form of furnace for heating the evaporating pans and boilers in a salt factory. (Century)

Salt garden. A saltern where sea water or brine is naturally evaporated in large shallow basins (Webster). *See* Saltern, 2.

Salt glaze. A glaze produced on pottery by volatilizing common salt in the kiln after partial firing. (Webster)

Salt horse. A quarryman's term for aplite (Perkins). *See* Salt vein.

Saltierra (Mex.). 1. One of the salt-basins formed by the drying up of salt lakes. (Standard)
2. Earthy, impure salt. (Dwight)

Salting. (Eng.) Sprinkling salt upon the floors of underground ways in very dry mines, in order to lay the dust. (Gresley)

Salting a mine. Sprinkling particles of gold or rich ore upon or digging them into the ground to make the mine appear rich in mineral. It is done with intent to defraud. (Cook *v.* Johnson, 3 Alaska, p. 519; Healey *v.* Rupp, 28 Colorado, p. 102: 63 Pac. 319; Southern Development Co. *v.* Silva, 125 United States, p. 253). *See* Salt, 3.

Salt lick. A place where salt is found on the surface of the earth to which animals resort to lick it up. (Webster)

Salt mine. A mine in which rock-salt deposits are worked. (Standard)

Salto (Sp.). A fault, throw or slide. (Halse)

Salt of phosphorus. Sodium ammonium phosphate; a reagent used in blow-pipe analysis. (A. F. Rogers)

Salt of tin. A mordant made by dissolving tin in hydrochloric acid; stannous chloride; tin salt. (Standard)

Salt of vitriol. *See* White vitriol.

Salt pan. 1. A shallow lake of brackish water. (Power)
2. A large pan for making salt by evaporation. 3. A salt works. (Webster)

Saltpeter. Potassium nitrate. One of the principal ingredients of black blasting powder.

Salt pit. A pit where salt is obtained; a salt pan. (Century)

Salt prairie. A tract of level land covered with a whitish efflorescence of natron or soda and presenting an aspect of utter desolation; common in New Mexico, Arizona, and Texas. Called also Soda prairie. (Standard)

Salt spring. A spring of water containing a large quantity of common salt (Comstock). (U. S. Min. stat., 1194–1214)

Salt vein. A term applied by quarrymen to a coarse granite vein from 2 inches to 2 or more feet thick, intersecting granite or any other crytalline rock (Merrill). *See* Salt horse.

Salt well. A bored or driven well from which brine is obtained. (Standard)

Salt works. A place where salt is made on a commercial scale. (Webster)

Salvapoleas (Sp.). An apparatus to protect hoisting pulleys against overwinding. (Halse)

Samarium. A rare metallic trivalent element found in association with yttrium, cerium, etc. It has a whitish-gray color. Symbol, Sa; atomic weight, 150.4: specific gravity, 7.7. (Webster)

Samarskite. A columbate and tantalate of uranium, the cerium metals, the yttrium metals, and minor quantities of other metals. (U. S. Geol. Surv.)

Sample. 1. A portion of the ore (coal, metal, etc.) systematically taken, by which its quality is to be judged. 2. To select or take at random a sample or specimen, as of ore, coal, etc. 3. To try, or test.

Sample cutter (Scot.). A steel tube with teeth at the end for cutting cores of mineral in boring. (Barrowman)

Sampler. 1. A mechanical device for selecting a certain fractional part of ore to be used as an assay sample; as for example, split shovel; riffle sampler; Brunton's mechanical sampler and Vezin sampler. (Hofman, p. 54)
2. One whose duty it is to select the samples for an assay, or to prepare the mineral to be assayed, by grinding and sampling. (C. and M. M. P.)

Sampling. 1. Cutting a representative part of an ore (or coal) deposit, which should truly represent its average value. Most usually a trench-like cut 4 inches wide and 2 inches deep is cut into the clean face of ore (or coal) and across its course. Honest sampling requires good judgment and practical experience. (Weed)
2. Selecting a certain fractional part of ore or coal from cars, stock piles, etc., for analysis.

Sampling works. A plant and its equipment for sampling and determining the value of ores that are bought, sold, or treated metallurgically.

Sampson post; Samson. An upright post which supports the walking beam, communicating motion from the engine to a deep-boring apparatus. (Raymond)

Sana birro (W. Afr.). Gold nuggets. (Lock)

Sana ku (W. Afr.). Gold washing. (Lock)

Sana manko (W. Afr.). Gold powder. (Lock)

Sand. 1. Separate grains or particles of detrital rock material, easily distinguishable by the unaided eye, but not large enough to be called pebbles; also, a loose mass of such grains, forming an incoherent arenaceous sediment. (La Forge)
Building sand, any hard, granular rock material finer than gravel and coarser than dust. The term indicates material comminuted by natural means. Quartz grains generally predominate in natural deposits, although such deposits commonly contain many other minerals. *Glass sand*, a sand of medium grain consisting of 98 to 100 per cent of silica (SiO_2), used in glass making. Iron oxides should form less than 1 per cent of the mass. *Molding sand*, a sand used in making molds for casting metal. (U. S. Geol. Surv.)
2. In geology, any loose or moderately consolidated bed consisting chiefly of sand; often used in the plural, even in the name of a single deposit. 3. Specifically, sandstone; a technical usage in petroleum regions. (Standard)

Sand bar. A bar of silt formed by currents in rivers and at their mouths, or of sand formed along beaches by tidal action. (Standard)

Sand bath. A vessel of hot sand in a chemical laboratory in which vessels to be heated are immersed. (Webster)

Sand bearings. The supports of a core in the sand of a mold. (Standard)

Sand bed. 1. The bed into which molten metal from a blast furnace is run. 2. A floor of a foundry, in which large iron castings are made. (Standard)

Sand blast. 1. A mudcap in which sand is used instead of mud. (Du Pont)
2. A stream of sand forcibly projected by air or steam for removing scale from metals. 3. The apparatus used to apply it. (Webster)

Sand-burned. Said of a metal casting, having a hard skin due to the silica of the sand combining with the surface of the metal when the latter is poured into the molds at high temperature. (Webster)

Sand crusher. An arrastre-like apparatus for breaking up and washing sand for glass making. (Standard)

Sand dike (Scot.). A wall of sand or gravel. (Barrowman)

Sand drift (Eng.). A general term for all wind-blown sands, whether occurring in inland deserts or along the seashores. (Page)

Sand dune. A mound, ridge, or hill of loose sand, heaped up by the wind.

Sanders process. A flotation process which uses, instead of an acid bath in deep pans, a dilute solution of aluminum sulphate in shallow pans. (Liddell)

Sand flag. Fine-grained sandstone, cleavable into flagstones. (Standard)

Sand flaw. In brickmaking, a flaw caused by imperfect mixture of the clay with sand; sand crack. (Standard)

Sand flood. A vast body of sand moving or borne along a desert, as in Arabia. (Century)

Sand gall. *See* Sand pipe.

Sand holder. A cavity in a pump-barrel to catch sand and keep it out of the way of the plunger or buckets. (Standard)

Sanding. In ceramics, the testing of gilding with fine sand and water after firing. (Webster)

Sandiver. A neutral salt skimmed off the surface of melted crown glass. Also called Gall of glass. (Ure)

Sandix. A kind of minium, or red lead, made by calcining carbonate of lead. (Webster)

Sand jack. A device consisting essentially of a sand box and a series of plungers for gradually lowering into position a heavy weight, supported by the plungers, by running out the sand below. (Webster)

Sand line. In well boring, a wire line used to lower and raise the bailer or sand pump, which frees the borehole from drill cuttings. (Nat. Tube Co.)

Sand pile. A filling of sand rammed hard in a deep round hole made by driving and withdrawing a wooden pile. Used in preparing foundations in soft soil. (Webster)

Sand pipe. A tubular cavity from a few inches to many feet in depth occurring in calcareous rocks, and often filled with gravel, sand, etc. Also called Sand gall. (Webster)

Sand pump. 1. A cylinder with a valve at the bottom, lowered into a drill hole from time to time to take out the accumulated slime resulting from the action of the drill on the rock. Called also Shell pump and Sludger. (Raymond)
2. A pump for lifting tailings at ore-dressing plants. (Clennell)

Sand reel. A windlass for working a sand pump in well boring. (Standard)

Sandrock. Same as Sandstone.

Sand roll. A metal roll cast in a mold of sand; distinguished from a *chilled roll*, which is cast in an iron mold or chill. (Standard)

Sands. 1. The coarser and heavier portions of the crushed ore in a mill. (Clennell, p. 34)
2. Tailings from the stamp mills of Lake Superior copper mines. (Weed)
3. *See* Sand, 2 and 3.

Sand scratches. Scratches or furrows worn in a rock surface by wind-blown sand. Such appearances are apt to be mistaken for glacial marks and require careful observation. *Compare* Glacial striæ.

Sand seam. A quarry term for a more or less minute vein or dike of muscovite (white mica) with some quartz, in cases also with feldspar. (Perkins)

Sandstone. An indurated sedimentary rock formed of coherent or cemented sand. (La Forge)
The following are common varieties: *Asphaltic* sandstone. A loose-textured sandstone containing asphalt. *Bluestone.* A tough bluish sandstone used for flagging. *Brownstone.* A sandstone of brown or reddish-brown color. Used for building. *Building sandstone.* Any sandstone suitable for building. *Flagstone.* A sandstone which cleaves into flags suitable for sidewalks and areaways. Includes most bluestone. *Freestone.* A sandstone which cuts with equal ease in any direction. Used for building. (U. S. Geol. Surv.)

Sandstone grit. 1. In geology, a coarse angular-grained sandstone. 2. In commercce, a sandstone well adapted for abrasive purposes and not necessarily having a coarse grain. (Bowles)

Sand streaks. Same as Sand seams. (Perkins)

Sand trap. A device for separating sand and other heavy particles from running water. (Century)

Sand washer. An apparatus for separating sand from earthy substances. (Century)

Sand (or Tailings) wheel (Mich.). A large wheel, having buckets on its inner perimeter, for elevating water and stamp-sand (Weed). Used as part of a tailings-disposal plant.

Sang de boeuf (Fr.). Literally, bullock's blood; a dark red of varying shades characterizing a certain kind of antique Chinese pottery and imitated in modern ware. (Standard)

Sangrar (Sp.). 1. To tap a furnace. 2. To drain a canal, river, or flume. (Halse)

Sangria (Sp.) 1. A crosscut from shaft to vein. (Dwight)
2. The act of tapping a furnace. 3. The stream of molten metal that comes from a furnace. (Halse)

Sanguinaria (Sp.). 1. Bloodstone, of a dark-green color, variegated by red spots. 2. Hematite. (Halse)

Sanidine; Sanidin. A glassy variety of orthoclase. (Dana)

Sanidinite. 1. A variety of syenite consisting predominantly of orthoclase; orthosite. 2. A variety of trachyte found in volcanic bombs and consisting almost wholly of sanidine (orthoclase). (La Forge)

Santorinite. A name proposed by H. S. Washington for those exceptional andesitic or basaltic rocks, which, with a high percentage of silica (65–69), yet have basic plagioclases, of the labradorite-anorthite series. The name was suggested by the volcano Santorini. The prevailing bisilicate at Santorini is pyroxene. (Kemp)

Sanukite. Weinschenk's name for a glassy phase of andesite that contains bronzite, augite, magnetite, and a few large plagioclases and garnets. The rock is related to the andesites as are the limburgites to the basalts. (Kemp)

Sap. 1. The part of the rock in a quarry which is next to the surface or to joints and crevices and has been somewhat stained and softened by weathering. (La Forge)
2. (Military) A deep, narrow ditch dug from an advanced parallel in the direction of a fortification, as for the advancement of siege-works. (Standard)

Sapo (Mex.). A railway frog. *See also* Rana. (Dwight)

Saponification. Conversion into soap; the process in which fatty substances form soap, by combination with an alkali (Rickard). A term used in the flotation process.

Saponifier. Any compound, as a caustic alkali, used in soapmaking to convert the fatty acids into soap. (Standard) A term used in the flotation process.

Saponite. A soft, massive, hydrous silicate of magnesium and aluminium, having a white, yellowish, grayish-green, bluish or reddish color, a greasy luster, and which occurs in cavities in basalt, diabase, etc. (Dana)

Sapper; Sappare. Same as Cyanite, which *see*.

Sapphire. Clear blue corundum, Al_2O_3. A well-known blue gem. There are also white, pink, and yellow sapphires. (U. S. Geol. Surv.)

Sapphire quartz. A rare blue variety of quartz. (Webster)

Saprolite. Disintegrated rock, from which the most easily soluble constituents have been removed, but which remains in place and still displays some of its texture and structure; the material formed during the intermediate stage of the decay of rocks. (La Forge)

Sarcophagus. A kind of limestone, used by the Greeks for coffins. (Standard)

Sard. A clear, red chalcedony, pale to deep in shade; also brownish red to brown. (Dana)

Sardachate. A variety of agate with reddish bands of carnelian; carnelian agate. (Standard)

Sardar (India). A mine foreman; a variant of Sirdar.

Sardina (Mex.). A crosscut saw. (Dwight)

Sardinianite. A variety of anglestie, $PbSO_4$, that crystallizes in the monoclinic system. (Standard)

Sardonyx. A variety of chalcedonic quartz (Dana). *See also* Sard

Sarrancolin marble. One of the most beautiful of foreign marbles. The prevailing colors are red, white, brown, green, and orange, in veins and blotches; from the valley of Aure, in the French Pyrenees. (Merrill)

Sarsen (Eng.). **1.** One of the large sandstone blocks scattered over the English chalk downs. Also called Sarsen stone and Druid stone (Webster). Also spelled Saracen and Sarcen. *See* Graywether.

2. One of the early inhabitants of southwestern England; especially, a former worker of the tin mines of Cornwall and Devon. (Standard)

Sartén (Mex.). A pan for drying moisture samples; frying pan. (Dwight)

Sassolite. Boric acid $B(OH)_3$ (Dana). Also spelled Sassolin; Sassoline.

Satelite. The gem-trade name for a fibrous serpentine having a chatoyant effect. (U. S. Geol. Surv.)

Satin spar. A fibrous silky variety of aragonite or of gypsum. (Power)

Satin stone. Same as Satin spar. (Standard)

Saturnine amaurosis. Impairment of vision from lead poisoning. (Standard)

Saturnine breath. The peculiar odor in the breath of one affected with lead-poisoning. (Standard)

Saturnine colic. Lead colic. (Standard)

Saturnine palsy. Lead palsy. (Standard)

Saturnism. Lead poisoning. (Standard)

Saussurite. A tough, compact, white, greenish, or grayish mineral, produced in part at least, by the alteration of feldspar, and consisting chiefly of zoisite or epidote. (Webster)

Saussuritization. The process by which saussurite is formed. (Standard)

Savelsberg process. *See* Blast roasting.

Saw (Eng.). A tool for removing irregularities from the sides of boreholes. (Gresley)

Sawback. A mountain range having sharp peaks of about equal height; a sierra. (Webster)

Saw gang. A frame provided with a number of parallel iron bars which are employed to saw stone (Bowles). *See* Stone-saw.

Sawney (Mid.). To lower full trams down a road with a rope or chain passing round a prop, etc. (Gresley)

Sawtooth back stoping. *See* Overhand stoping.

Saw-tooth floor channeling. A method of channeling inclined beds of marble by removing right-angle blocks in succession from the various beds, thus giving the floor a zigzag or saw-tooth appearance. (Bowles)

Saw-tooth stoping. *See* Rill stoping.

Sax. A slate-cutter's hammer, having a pointed pick at the back to make nail-holes. Called also Slate-ax. (Standard)

Saxatile. Pertaining to rocks. (Saxicolene. (Webster)

Saxonian chrysolite. A pale wine-yellow topaz. (Power)

Saxonite. A variety of peridotite containing essential olivine and orthorhombic pyroxene, with or without biotite, hornblende, chromite, and picotite. (La Forge) It is a synonym for Harzburgite, but saxonite has priority. (Kemp)

Scab. 1. (Iowa). To dress, with heavy picks or hammers, rough quarry material to approximately rectangular blocks. *See* Scabble, 1.
2. In founding, a blister or swell on the surface of a casting. (Standard)

Scabbit parting (Scot.). A rough parting. (Barrowman)

Scabble. 1. To work or shape roughly, as a stone before leaving a quarry.
2. To dress in any way short of fine tooling or rubbing, as stone (Webster). *Compare* Scab, 1.

Scabbler. In granite works, a workman who scabbles. (Century)

Scabbling. 1. The process of removing all surface irregularities from blocks of stone and thus reducing them to proper form. (Bowles). *See* Scab, 1.
2. A fragment or chip of stone. (Webster)

Scabbling hammer. A hammer with two pointed ends for picking the stone, after the spalling hammer. (Century)

Scabby. In founding, blistered or marred with scabs; said of a casting. (Standard)

Scad. A name occasionally applied to a nugget, as of gold. (Duryee)

Scaf (Prov.). The tapered edge of metal where two pieces are welded together. (Standard)

Scaffings (Derb.). Refuse from ore dressing; chippings. (Hooson)

Scaffold. An obstruction in a blast furnace above the tuyères caused by an accumulation or shelf of pasty, unreduced materials adhering to the lining. (Raymond)

Scaffolding. Incrustations on the inside of a blast furnace (C. and M. M. P.). *See* Scaffold.

Scaglia. An Italian calcareous somewhat fissile and fossiliferous Cretaceous rock, corresponding to the Chalk of England. (Standard)

Scagliola (It.). Hard, polished plaster-work imitating marble, granite, or other veined, mottled, or colored stone; made of powdered gypsum and glue or isinglass, colored and variegated in various ways. (Standard)

Scal (Corn.). *See* Scall.

Scale. 1. The crust of metallic oxide formed by cooling of hot metals in air. Hammer-scale and roll-scale are the flaky oxides which fall from the bloom ingot, or bar under hammering or rolling. 2. The incrustation caused in steam-boilers by the evaporation of water containing mineral salts. 3. (Newc.) A small portion of air abstracted from the main current. Also called Scale of air, and sometimes spelled Skall. (Raymond)
4. The rate of wages to be paid, which varies under certain contingencies. (Steel)
5. Crude paraffin obtained in petroleum refining by filtering from the heavier oils. (Webster)
6. Loose, thin fragments of rock, threatening to break or fall from either roof or wall. (Moring)
7. To get rid of the film of oxide formed on the surface of a metal, as to clean the surface.

Scale copper. Copper in very thin flakes. (Weed)

Scalent. In the Pennsylvania (Roger's) system of stratigraphy, a group considered equivalent to the Lower Helderberg of the New York Survey. (Standard)

Scale of air (Newc.). *See* Scale, 3.

Scale stone. Same as Wollastonite. (Standard)

Scaling bar. A bar-like implement for removing incrustations as from the inside surfaces of boilers. (Standard)

Scaling furnace. A furnace or oven in which plates of iron are heated for the purpose of scaling them, as in the preparation of plates for tinning. (Century)

Scall. 1. (Eng.). Loose ground; foliated ground is frequently called *scally* ground by miners (Hunt). Also spelled Scal. Probably a variation of scale.
2. Rock easily broken up because of its scaly structure. (Standard)

Scallop (Eng.). To cut or break off the sides of a heading without holing or using powder. (Gresley)

Scammed (No. of Eng.). Sooty. (Gresley)

Scamy (Eng.). Applied to freestone in thin layers, mixed with mica. (Bainbridge)

Scamy post (No. of Eng.). Soft, short, jointy freestone, thinly laminated and much mixed with mica. (Gresley)

Scandium. A rare metallic trivalent element found combined in company with yttrium, cerium, etc. The element has not been isolated. Symbol, Sc; atomic weight, 44.1. (Webster)

Scantite. A gauge by which slates are assorted in sizes. (Standard)

Scantling. The dimensions of a stone in length, breadth, and thickness. (Standard)

Scapolite. The group name for certain orthosilicates. For common scapolite, *see* Wernerite. (Dana)

Scapolite-gabbro. A massive, hornblende scapolite rock formed by the alteration of gabbro. Called also Spotted gabbro. (Standard)

Scar. 1. (Scot.) An isolated or protruding rock; a steep, rocky eminence; a bare place on the side of a mountain or steep bank of earth.
2. (Eng.) In roasting pyrite for sulphuric acid manufacture, a lump formed by fritting; a hard cinder; furnace slag. (Webster)
3. In founding, an imperfect spot in a casting. (Standard)

Scarcement. 1. A projecting ledge of rock, left in a shaft as footing for a ladder, or to support pit-work, etc. (Raymond)
2. An offset or retreat in the thickness of a wall or band of earth, etc. (Webster)

Scares (No. of Eng.). Thin laminæ of pyrite in coal. (Gresley)

Scarf. 1. A lapped joint made by beveling, notching, or otherwise cutting away the sides of two timbers at the ends, and bolting or strapping them together so as to form one continuous piece, usually without increased thickness. Called also Scarf joint. 2. A piece of metal shaped or beveled for a scarf weld. (Standard)

Scarfing. Splicing timbers, so cut that when joined the resulting piece is not thicker at the joint than elsewhere. (Raymond)

Scarf joint. *See* Scarf, 1.

Scarf weld. A weld-joint between two metal pieces that are notched or beveled. (Standard)

Scar limestone. The mountain limestone of the English Lower Carboniferous: so called because it frequently forms scars or cliffs. Called also Scaur limestone; Thick limestone. (Standard)

Scarp. 1. An escarpment, cliff, or steep slope along the margin of a plateau, mesa, terrace, or bench. The term implies a certain amount of linearity and should not be used for a cliff or slope of highly irregular outline. (La Forge) 2. To cut down vertically, or nearly so; as, to scarp a ditch. (Webster)

Scarring. 1. The formation of scars or scaurs in roasting pyrite for sulphuric acid manufacture. (Webster). *See* Scar, 2.
2. A mark left by abrasion, or such marks collectively; said specifically of geological processes; as, the *scarrings* of the glacier. (Standard)

Scatter (York.). A rumbling or falling noise in a mine-shaft. (Gresley)

Scaur (Scot.). *See* Scar.

Schalstein. An old name for a more or less metamorphosed diabase tuff. (Kemp)

Schapbachite. A lead-bismuth mineral, $PbS.Ag_2S.Bi_2S_3$ occurring in acicular crystals, granular and massive. Color lead-gray (Dana). Called also Bismuth silver.

Schaum earth. Same as Aphrite.

Scheelite. Calcium tungstate, $CaWO_4$. Contains 80.6 per cent tungsten trioxide, WO_3. (U. S. Geol. Surv.)

Scheererite. A whitish, gray; yellow, green, or pale reddish, brittle, tasteless, inodorous hydrocarbon; it melts at 44° C. and is soluble in alcohol and ether. It may be distilled without decomposition, boiling at 92° C. (Bacon)

Schefferite. A brown to black variety of pyroxene, containing manganese and frequently much iron. (Webster)

Schiefer spar. A variety of calcite occurring in very thin plates or scales. (Power)

Schiller. A bronze-like luster or iridescence due to internal reflection in minerals that have undergone schillerization. (Standard)

Schiller-fels. Enstatite, or bronzite-peridotite with poicilitic pyroxenes. Orthorhombic pyroxenes possess the poicilitic texture to a peculiar degree, and especially when more or less altered to bastite, the term schiller is especially applied to them. (Kemp)

Schillerisation. The development of poicilitic texture by the formation of inclusions and cavities along particular crystal planes, largely by solution somewhat as are etch figures.

Schiller spar. An altered enstatite or bronzite, having approximately the composition of serpentine. Bastite. (Dana)

Schist. A crystalline rock that can be readily split or cleaved because of having a foliated or parallel structure, generally secondary and developed by shearing and recrystallization under pressure. (La Forge)

Schistose. Characteristic of, resembling, pertaining to, or having the nature of schist. (La Forge)

Schistosity. The quality of being schistose; schistose structure; secondary foliation. (Standard)

Schlich (Ger.). Finely pulverized ore; mud (Whitney). Called also Slick.

Schlicker (Ger.). The skimmings from molten unrefined lead, containing chiefly copper, iron, and zinc, with a little antimony and arsenic. (Raymond)

Schliere (Ger.). An irregular portion, ordinarily not everywhere sharply bounded, of an igneous rock, that differs in texture or composition from the rest of the mass but is an essential part of it. Plural, Schlieren. (La Forge) There are several different varieties, for discussion of which *see* Zirkel's Lehrbuch der Petrographie, I., 787, 1893. (Kemp)

Schmelze. Any one of various kinds of decorative glass, especially the variety that is colored red with a metallic salt, as copper or gold, and used to flash white glass. (Standard)

Schneider furnace. A distillation furnace for the reduction of zinc ores containing lead, with a recovery of the latter metal as well as the zinc. (Ingalls, p. 491)

Schorl. An old name for tourmaline, still sometimes used in names of rocks. (Kemp) Mainly restricted to black tourmaline.

Schorlaceous. Containing black tourmaline; as *schorlaceous* granite. (Standard)

Schorlomite. A massive, black silicate of titanium, iron and calcium. (Century)

Schraufite. A resin, $C_{11}H_{10}O_2$, which occurs in Carpathian sandstone near Wamma, in Bukowina. It has a specific gravity of 1.0 to 1.12 and fuses at 326° C. (Bacon)

Schungite. An amorphous form of carbon that is closely related to graphite. (Standard)

Schwefelkies; Eisenkies (Ger.). Pyrite. (Dana)

Schwerspath (Ger.). Barite. (Dana)

Scintillation. Burning with brilliant sparks; *e. g.*, white-hot iron when exposed to a current of air. (Jackson)

Scintle. To stack molded bricks with places between to allow ventilation for drying. (Webster)

Scintling. A scintled brick, or one ready to be scintled. (Standard)

Scissors fault. A fault of dislocation, in which two beds are thrown so as to cross each other. (C. and M. M. P.)

Sclaffery (Scot.). Liable to break off in thin fragments, as the roof of a mine working. (Barrowman)

Scleretinite. A black, brilliant oxygenated hydrocarbon from the coal measure of Wigan, England; it has a specific gravity of 1.136, and is insoluble in alcohol, ether, alkalies and dilute acids. (Bacon)

Sclerometer. An instrument for determining the degree of hardness of a mineral by ascertaining the pressure on a moving diamond point necessary to effect a scratch. (Standard)

Sclit; Sclutt (Scot.). Coaly blaes, or slaty coal. (Barrowman)

Scobbed (Scot.). Said of a car only partly filled with coal. A hutch of mineral is scobbed when large pieces are laid over the corners to give the appearance of the hutch being full, when there is in reality little material in it. (Barrowman)

Scobs. The dross of metals. (Standard)

Scolecite. A vitreous or sliky, transparent to subtranslucent, hydrous calcium-aluminum silicate, $CaAl_2Si_3O_{10}+3H_2O$. (Dana)

Scomfish (No. of Eng., and Scot.). To suffocate, as with foul gas or smoke; smother; stifle. (Standard)

Sconce. A protection, cover, shelter, or screen (Webster). A metal cover and holder combined for holding a miner's candle, especially for hanging on wooden timbers.

Scoop (York.) A barrel or box used in a gin pit. (Gresley)

Score 1. (No. of Eng.) A standard number of tubs of coal upon which hewers' and putters' prices for working are paid. 2. A bill run up by a collier in "bad times" for the necessaries of life. (Gresley)
3. To mark with scratches or furrows, as rocks in certain localities by glacial drift. 4. To burst or split from unequal cooling: said of a casting. (Standard)

Scoria. 1. An irregular, rough, clinkerlike, more or less vesicular fragment of lava, thrown out in an explosive eruption or formed by the breaking up of the first-cooled crust of a lava flow. Plural, Scoriae. (La Forge)
2. Refuse of fused metals; dross; slag. (Standard)

Scoriaceous. Characteristic of, pertaining to, consisting of, or resembling scoriae; having a rough, irregular, clinkerlike, somewhat vesicular surface; said of some lava. (La Forge)

Scorification. A process employed in assaying gold and silver ores, and performed in a shallow clay vessel (scorifier), in which ore, lead, and borax-glass are exposed to heat and oxidation in a muffle. The operation involves roasting, fusion, and scorification proper, or the formation of a slag, which is not, like the litharge produced in cupellation, absorbed by the vessel. (Raymond)

Scorifier. 1. A small bowl-shaped cup used in assaying. 2. A furnace in which sweepings containing waste gold or silver are burnt, preparatory to extracting the gold and silver. (Webster)

Scoring. A deep groove or such grooves collectively, as those made by glacial action. (Standard)

Scorodite. Hydrous ferrous arsenate, $Fe_2O_3.As_2O_5.4H_2O$. (U. S. Geol. Surv.)

Scotch. 1. A wooden stop-block or iron catch placed across or between the rails of underground roadways, to keep the tubs from running loose, or to hold them when standing upon an inclined plane. 2. (Leic.) The lower lift of coal which is wedged up in driving a heading. (Gresley)
3. A chock, wedge, prop, or other support to prevent slipping or rolling. (Webster)
4. To dress, as stone, with a pick or picking tool. 5. A slotted bar used to hold up well-boring rods during adjustment. (Standard)

Scotch gauze-lamp (Scot.). A safety lamp used in Scotland, the top of the lamp being wholly of wire gauze. (Barrowman)

Scotch hearth. A low forge or furnace of cast-iron, with one tuyère, in which rich galena is treated by a sort of accelerated roasting and reaction process. (Raymond)

Scotching. A method of dressing stones either with a pick or pick-shaped chisels. (Century)

Scotch pebble. One of several varieties of quartz, chiefly cairngorm, used in Scotland as a semiprecious stone. (Standard)

Scotch pig. A very pure grade of pig iron. (Standard)

Scotch stone. *See* Ayr stone.

Scour (Mid.). To excavate or brush a roadway through a goaf. (Gresley)

Scouring. Having the quality of eroding the furnace-hearth, as some kinds of slag or cinder (Standard). *See* Scouring cinder.

Scouring bit (Eng.). A piece of iron at the end of the boring rod for extracting drill cuttings. (Bainbridge)

Scouring cinder. A basic slag, which attacks the lining of a shaft furnace. (Raymond)

Scourway. A drainage furrow caused by a strong current, as by a glacial river flowing over a gravel plain. (Standard)

Scout. A term frequently used for an engineer who makes preliminary examinations of promising mining claims and prospects, as for mineral, coal, oil, etc.

Scouter (Prov.). In stone-working, a quarryman whose function is to split off large portions of rock by means of a jump drill and wedges. (Standard)

Scovan (Corn.). A tin-bearing lode.

Scovan lode (Corn.). A lode of tin, especially one showing no gossan. (Webster)

Scovany. Like a tin lode; hard to work, by reason of the absence of selvage or other soft material. (Standard)

Scove. 1. (Corn.) Rich, clean tin ore. (Webster)
2. To case up (bricks) in a kiln. (Standard)

Scove kiln. A temporary kiln, often used for burning common brick. (Ries)

Scovens (So. Staff.). Forks for loading coal into tubs, or cars. (Gresley)

Scovillite. A hydrous phosphate of didymium, yttrium, and other rare earths. (Century)

Scoving. The outer wall or casing of a brickkiln. (Standard)

Scowl (Local Eng.). Old workings at the outcrop of deposits of iron ore; a term peculiar to the Forest of Dean. (Standard)

Scowl a brow (Forest of Dean). To drive a heading or level by guesswork. (Gresley)

Scram. 1. To search for and extract ore in a mine that is apparently worked out. (Weed)
2. (Ala.) A small soft-coal mine complete in itself. (Republic Steel & Iron Co. *v.* Luster, 68 Southern, p. 359, –1915)

Scrammer. One who scrams (Standard). *See* Scram, 1.

Scram pile (Prov.). The product of the scrammers' labors, gathered for shipment (Standard). *See* Scram, 1.

Scraper. 1. A tool for cleaning the dust out of the bore-hole. 2. A mechanical contrivance used at collieries to scrape the culm or slack along a trough to the place of deposit. 3. One who separates the ores from the waste rock. (Steel)
4. An apparatus drawn by horses or oxen for scraping up earth in making roads or canals, and for removing overburden from shallow coal beds and mineral deposits.

Scraper chaser (Oil regions, U. S.). One of a number of men whose business it is to follow the scraper (go-devil) in the petroleum pipes and give instant notice if a clog occurs (Standard). He follows the pipe line on the surface and detects the location of the go-devil by sound, especially where pipes are shallow. *See* Go-devil, 1.

Scraper conveyer. A mechanical device for conveying coal, rock, ashes, culm, etc., in a metal trough by means of scrapers attached to a rope or chain.

Scrap-forgings. Forgings formed from wrought-iron scrap. (Standard)

Scrapman. *See* Scrapper. May also refer to a man who breaks and removes heavy scrap in cast houses at blast furnaces. (Willcox)

Scrapper. 1. One who removes scrap from bin, cast house, or chute to skip pit, and charges the material removed into a skip at regular intervals. (Willcox)
2. A local name given to men who pick up the ore left on dumps. (C. and M. M. P.)

Scrap picker. A man employed on the slag dump to pick out pieces of iron carried to the dump in slag ladles. (Willcox)

Scrapping. The breaking up of metal castings, plate, etc., with explosives, generally by mudcapping. (Du Pont)

Scratch. A calcacerous, earthy, or strong substance which separates from sea water in boiling it for salt. (Century)

Scratched. In ceramics, ornamented with rough scratches in the paste. (Standard)

Scratcher (Eng.). A boring tool for loosening (or scratching) the cuttings at the bottom of a bore-hole, to be afterwards removed by a mizer. (Gresley)

Scratch pan. A pan in salt works to receive the scratch. (Century)

Scree. 1. A heap of rock waste at the base of a cliff, or a sheet of waste covering a slope below a cliff; same as Talus, *which see.* (La Forge)
2. A sieve, screen, or strainer (Webster). A coal screen.

Scree bars (Scot.). Bars of which a scree is constructed (Barrowman). *See* Scree, 2.

Screen. 1. A sieve of wire cloth, grate-bars, or perforated sheet-iron used to sort ore and coal according to size. Stamp-mortars have screens on one or both sides, to determine the fineness of the escaping pulp. (Raymond)
2. A cloth brattice or curtain hung across a road in a mine to direct the ventilation. (Gresley)
3. (Joplin, Mo.) A grizzly near the top of a head-frame.

Screen analysis. The determination of weights of crushed material which passes through or is held on a series of screens of varying mesh. (Clennell)

Screen ape (Joplin, Mo.). One who attends the grizzly, or screen. He breaks the large pieces of ore, and picks out such waste rock as he can as it passes over the screen.

Screen cloth (Scot.). Tarred canvas; brattice cloth. (Barrowman)

Screened coal. 1. Coal that has passed over any kind of a screen and therefore consists of the marketable sizes.
2. Specifically, coal that is weighed and credited to the miner after passing over a standard screen. (Steel)

Screening machine. An apparatus having a shaking, oscillatory, or rotary motion, used for screening or sifting coal, stamped ores, and the like.

Screener (Newc.). A man who shovels the coal from the screens into the wagons. (Min. Jour.)

Screenings. Fine coal that passes through a screen when screening for lump coal.

Scree plate (Scot.). An iron plate at the foot of a screen on which screened coal is discharged. (Barrowman)

Screw bell. A recovering tool in deep boring, ending below in a hollow screw-threaded cone. (Raymond)

Screw casing. A threaded lap-welded well casing. (Redwood, p. 206)

Screw-down. A workman in a rolling mill whose duty it is to judge of the distance to be given between rolls at each pass and to adjust them correspondingly. (Standard)

Scribe. An instrument used by surveyors for marking posts, trees, etc.

Scrin. 1. (Derb.) Ironstone in irregular-shaped nodules. (Gresley)
2. (Derb.) A small subordinate vein (Raymond). Also spelled skrin.

Scrip. Credit slips or tickets issued by a mining company to its employees before pay day in lieu of cash. The scrip drawn is charged against the pay of the employee, and is exchangeable for commodities at the company store at its face value.

Scroddle. To variegate, as pottery ware, in different colors by the use of various colored clays. (Standard)

Scroll drum (Eng.). A conical winding drum. (Gresley)

Scronge (So. Wales). Overlying strata loosened or broken by workings underneath (Gresley). Probably a variation of scrunge, to squeeze.

Scrowl. 1. (Corn.) A thin, sometimes calcareous, sometimes siliceous, rock attached to the wall of a lode. (Power)
2. (Corn.) Loose ore at the point where a lode is disturbed by a cross vein. (Davies)

Scrubber. An apparatus for washing coal gas, or other gases. (Webster)

Scrubstone (Eng.). A provincial term for a variety of calciferous sandstone. (Humble)

Scrub water (Ark.). Water supplied to mining camps for bathing and laundry purposes. (Steel)

Scud. 1. (Leic.) Very thin layers of soft matter, such as clay, sooty coal, etc. 2. (Mid.) Pyrite embedded in coal seams. (Gresley)

Sculp. To break slate into slabs suitable for splitting. (Webster)

Scum. Impure or extraneous matter that rises or collects at the surface of liquids, as vegetation on stagnant water, or dross on a bath of molten metal. Sometimes, but incorrectly, used for the word "froth" in flotation. (Rickard)

Scun (Devon.). A small vein. (Davies)

Scupper nails. Nails with broad heads, for nailing down canvas, etc. (C. and M. M. P.)

Scyelite. Judd's name for a rock, related to the peridotites, that occurs near Loch Skye, in Scotland. Its principal mineral is green hornblende, presumably secondary after

augite; with it are bleached biotites and serpentine, supposed to be derived from olivine. (Kemp)

Scythestone. A whetstone suitable for sharpening scythes. (U. S. Geol. Surv.)

Sea-beach placers (Alaska). Placers adjacent to the seashore to which the waves have access.

Se abre (Sp.). A miner's phrase for the widening or opening of a vein. (Halse)

Sea coal. 1. (Scot.) Coal, which in early times was worked on the sea shore; coal carried by sea; coal seaward of low-water mark belonging to the Crown (Barrowman). Formerly so called in distinction from charcoal, because originally brought to London by sea. (Webster)
2. (Rare U. S.) Soft coal, as distinguished from anthracite. (Standard)
3. A finely ground coal used as a powder for facing molds; foundry facing.

Seafoam. An early synonym for Meerschaum. (Chester)

Seal. 1. (Corn.) A portion of earth or rock which separates and falls from the main body. (Raymond)
2. To secure against a flow or escape of gas, air, or liquid; as to seal a mine.

Seal coat. A final superficial application of bituminous material to a pavement upon completion of construction. (Bacon)

Seam. 1. A stratum or bed of coal or other mineral. 2. (Corn.) A horse-load. 3. A joint, cleft, or fissure. (Raymond)
4. A plane in a coal bed at which the different layers of coal are easily separated. (Steel)
5. A ridge in a casting, marking the place where the mold parted. (Standard)

Seam blast. A blast made by placing powder or other explosives along and in a seam or crack between the solid wall and the stone or coal intended to be removed. (Barclay *v.* Wetmore-Morse Granite Co. (Vt.), 102 Atlantic, 495)

Seam-out. A shot that merely blows out a soft stratum in the coal or escapes through a seam without loosening the main mass of coal. In Arkansas, called Squeal out. (Steel)

Sea mud. A rich saline deposit from salt marshes and seashores. (Century)

Seamy. Full of seams so as to be difficult to blast. (Steel)

Sea ore (Eng.). Sea weed. (Webster)

Seasale (Newc.). Coal delivered by or to ships, as for export. (Min. Jour.)

Sea salt. Salt made by the evaporation of sea water. (Standard)

Seasoned. Applied to quarry stone after the moisture has dried out. (Gillette, p. 6)

Seat. 1. (Derb.) The floor of a mine. (Raymond)
2. The foundation or framework on which a structure rests, *e. g.*, engine seat, cage seat. (Barrowman)

Seat-clay. Fire clay. (Power)

Seat earth (York.). A bed of clay underlying a coal-seam; sometimes highly siliceous, and then known as *ganister*. Called also Underclay. (Standard)

Seat rock; Hard seat. The nearest bed of clunch, grit, or sandstone, under a coal seam (Power). Also called Seat stone.

Seat stone. *See* Seat rock.

Sea wax. A kind of ozocerite or mineral wax; maltha. (Webster)

Sebka (No. Afr.). A dry area or bed of a lake incrusted with salt; a salt marsh. (Standard)

Secador (Mex.). An apparatus for drying samples. (Halse)

Secadora (Colom.). A copper vessel for drying gold before weighing. (Halse)

Secas (Mex.). Refined silver. (Halse)

Sección (Sp.). Section. (Dwight)

Se cierra (Sp.). A miner's phrase for the narrowing or closing of a vein. (Halse)

Seco. 1. (Sp.) Dry. In the *patio* process, said of gangue which is dry.
2. *Veta seca* (Colom.), a vein lacking water for its exploitation. (Halse)

Second, or Back explosion (Aust.). Supposed to be due to the ignition of gases developed from highly heated coal dust, and gases sucked out of the faces of coal by the partial vacuum resulting from the primary explosion, or liberated by fall of roof (Power). *Compare* Retonation wave.

Secondary. 1. (a) Having been acquired or formed by alteration or metamorphism since the formation of the rock; derived; said of some textures and minerals of altered rocks and contrasted with "original." (b) Formed of material derived from the erosion or disintegration of other rocks; derivative: said of clastic sedimentary rocks. 2. Same as Mesozoic, which has replaced it. Obsolescent in this sense. (La Forge)

Secondary blasting. A term applied to the blasts employed in breaking up the larger masses of rock resulting from the primary blasts. Also termed Blistering or Bulldozing. (Bowles)

Secondary clay. Clay found deposited away from its place of formation. (Webster)

Secondary drilling. The process of drilling the so-called "pop holes" for the purpose of breaking the larger masses of rock thrown down by the primary blast. (Bowles)

Secondary enlargement. The addition of silica to the original quartz grains of a sandstone, the secondary or added part having the same optical orientation as the original grain. It may result in the development of crystal faces. (Bowles)

Secondary enrichment. An enrichment of a vein or an ore body by material of later origin, often derived from the oxidation of decomposed overlying ore masses. Nature's process of making high-grade out of low-grade ores. First discovered by Weed and announced by publication in Geol. Soc. of America program, Dec. 8, 1899. Confirmed by Emmons and by Van Hise, Feb., 1900. (Weed)

Secondary mineral. A mineral resulting from the alteration of a primary mineral. Thus, original sulphides by oxidation change to sulphates, carbonates, and oxides, and these by hydration become hydrous forms of the same.

Second outlet; Second opening. An auxiliary passageway out of a mine, for use in case of accident to the main outlet. (C. and M. M. P.)

Seconds. The second-class ore of a mine that requires dressing. (C. and M. M. P.)

Second working. The operation of getting or working out the coal pillars formed by the first working. (Gresley)

Section. 1. In geology, either a natural or an artificial rock-cut, or the representation of such on paper. (Roy. Com.)
2. A term usually applied to a vertical exposure of strata. 3. A drawing or diagram of the strata sunk through in a shaft or inclined plane, or proved by boring. (Gresley)
4. (Scot.). A division of the mine workings. (Barrowman)
5. One of the portions, of 1 mile square, into which the public lands of the United States are divided and containing 640 acres. One thirty-sixth of a township. (Webster)
6. A very thin slice of anything, especially for microscopic examination. (Specifically, rocks, steels, alloys, etc.) 7. The local series of beds constituting a group or formation, as, the Cambrian *section* of Wales. (Standard)

Sedentary. Formed in place, without transportation, by the disintegration of the underlying rock or by the accumulation of organic material; said of some soils, etc. (La Forge)

Sediment. 1. Unconsolidated, clastic, rock-forming material, deposited, commonly in layers of strata, from suspension in or transportation by water or air. (La Forge)
2. In a steam-boiler, an internal deposit of loose soft matter, as distinguished from *scale*, which is hard. (Standard)

Sedimentary. Formed by deposition or accretion of grains or fragments of rock-making material, commonly from suspension in or transportation by water or air, or by the precipitation of such material from solution, with or without the aid of living organisms: said of one of the two great classes of rocks and contrasted with Igneous. (La Forge)

Sedimentary rocks. Rocks formed by the accumulation of sediment in water (aqueous deposits) or from air (eolian deposits). The sediment may consist of rock fragments or particles of various sizes (conglomerate, sandstone, shale); of the remains or products of animals or plants (certain limestones and coal); of the product of chemical action or of evaporation (salt, gypsum, etc.); or of mixtures of these materials. Some sedimentary deposits (tuffs) are composed of fragments blown from volcanoes and deposited on land or in water. A characteristic feature of sedimen-

tary deposits is a layered structure known as bedding or stratification. Each layer is a bed or stratum. Sedimentary beds as deposited lie flat or nearly flat. (Ransome)

Sedimentation. The accumulation of earthy particles, usually under water. A sedimentary rock is one consisting of particles thus deposited. (Perkins)

Sedimento (Sp.). Sediment; boiler scale. (Halse)

Sediment vein. A fissure filled from above by sedimentary matter. A rare occurrence in nature. (Shamel, p. 165)

Seed-bag. A bag filled with flaxseed and fastened around the tubing in an artesian well, so as to form, by the swelling of the flaxseed when wet, a water-tight packing, preventing percolation down the sides of the bore hole from upper to lower strata. When the tubing is pulled up the upper fastening of the bag breaks, and it empties itself, thus presenting no resistance to the extraction of the tubing. (Raymond)

Seep. A spot where water or petroleum oozes out slowly; a small spring. (Webster)

Seepage. A fluid, or the quantity of it, that has oozed or seeped through porous soil. (Webster)

Segger; Sagger. A cylindrical vessel of fire-clay in which fine stoneware is encased while being baked in the kiln. (Ure)

Segregate. 1. (Pac.) To separate the undivided joint ownership of a mining claim into smaller individual "segregated" claims. (Raymond) 2. In geology, to separate from the general mass, and collect or become concentrated at a particular place or in a certain region, as in the process of crystallization and solidification (Webster). *See* Segregated vein.

Segregated vein. A vein in which the filling is believed to have been derived from the adjacent country rock by percolating water carrying the dissolved mineral matter into the fissure. (Shamel, p. 149)

Segregation survey. The survey of a mining claim located on lands classified as agricultural. (Creswell Min. Co. *v.* Johnson, 8 Land Decisions, p. 442; Lannon *v.* Pinkston, 9 Land Decisions, p. 143)

Segregation vein. Same as Segregated vein.

Segullo (Sp.). Earth overlying auriferous deposits. (Lucas)

Seismic. Pertaining to, characteristic of, or produced by earthquakes or earth-vibration; as, *seismic* disturbances. (Standard)

Seismic area. The area affected by any particular earthquake. (Standard)

Seismism. The processes or phenomena involved in earth movements. (Standard)

Seismology. The science of earthquakes. (Power)

Seismoscope; Seismometer. An instrument by the aid of which the data are obtained for the scientific study of earthquake phenomena. (Century)

Selagite. A name of Hauy's for a rock consisting of mica, disseminated through an intimate mixture of amphibole and feldspar, but it has been since applied to so many different rocks as to be valueless. (Kemp)

Selective flotation. Generally understood to refer to the surface or froth "selecting" the valuable minerals rather than the gangue. Sometimes used to mean Differential flotation, which *see*. Also *see* Preferential flotation. (O. C. Ralston, Bu. Mines)

Selective mining. A method of mining whereby ore of unwarranted high value is mined in such manner as to make the low-grade ore left in the mine incapable of future profitable extraction. In other words, the best ore is selected in order to make good mill returns, leaving the low-grade ore in the mine. Frequently called Robbing a mine.

Selector. In copper smelting, a kind of converter with horizontal tuyères, to produce bottoms and a purified copper in one operation. (Webster)

Selenite. Gypsum in distinct crystals or broad folia, $CaSO_4.2H_2O$. *See* Gypsum. (U. S. Geol. Surv.)

Selenite plate. In mineralogy, a plate of selenite which gives a purplish-red interference color of the first order with crossed nicols. (A. F. Rogers)

Selenium. An element, Se. Not found native in visible quantity. Is obtained as a by-product in the electrolytic refining of copper. *See* Ono-

frite and Tiemmanite (U. S. Geol. Surv.). Resembles sulphur and tellurium chemically. Atomic weight, 79.2; specific gravity, 4.26.

Selenolite. Wadsworth's name for rocks composed of gypsum or anhydrite. (Kemp)

Self-acting plane. An inclined plane upon which the weight or force of gravity acting on the full cars is sufficient to overcome the resistance of the empties; in other words, the full car, running down, pulls the other car (empty) up. (Steel)

Self-contained portable electric lamps. Electric lamps that are operated by an electric battery that is designed to be carried about by the user of the lamp. (H. H. Clark)

Self-detaching hook. A self-acting hook for setting free a hoisting rope in case of overwinding. (C. and M. M. P.)

Self-feeder. An automatic appliance for feeding ore to stamps or crushers without the employment of hand labor. (Min. Jour.)

Self-glazed. Having a glaze of but one tint: said of Oriental porcelain. (Standard)

Self-open (Derb.). A natural fissure in rock. Also called Shack. (Mander)

Self-shooter. *See* Booming; *also* Flop-gate.

Selvage; Selfedge. A layer of clay or decomposed rock along a vein-wall. *See* Gouge. (Raymond)

Semialtos (Mex.). Furnaces of medium size for smelting copper ores. (Halse)

Semi-bituminous. Half or somewhat bituminous; applied to a variety of coal intermediate between bituminous coal and anthracite, averaging 15 to 20 per cent of volatile matter. (Webster)

Semi-crystalline. Somewhat crystalline; said of rocks that are partly crystalline or partly amorphous. (Standard)

Semi-dry-press process. In brick making, practically the same as dry press, but clay may be slightly moister. (Ries)

Semi-faïence. Pottery with a glaze very thin or transparent. (Webster)

Semi-metal. In old chemistry, a metal that is not malleable, as bismuth, arsenic, antimony, etc. (Century) Long obsolete.

Semi-opal. Common opal as distinguished from precious and fire opal. (A. F. Rogers)

Semi-porcelain. A kind of porcelain resembling earthenware in its lack of translucency or interior finish. (Webster)

Semi-precious. Precious in an inferior degree; applied especially to such stones as amethyst, garnet, tourmaline. (Webster)

Semi-steel. A mixture consisting of ⅔ No. 1 charcoal iron and ⅓ of varying proportions of good wrought-iron scrap, soft-steel punchings, shearings or rail butts. Used for making slag pots (Hoffman, p. 259). Puddled steel.

Semi-transparent. A term used to describe minerals when objects may be seen through them but without distinct outlines. (Dana)

Semi-water-gas. A fuel gas intermediate in composition between water-gas and producer-gas, made by allowing a mixture of steam and air to flow into a producer. (Webster)

Semi-wet method. A method of mixing the raw materials for Portland cement. The materials at first are dry; at some stage water is added, all subsequent steps being similar to those employed in the wet method (Bowles). Also termed Semi-dry method.

Sempatic. A descriptive term applied to porphyritic igneous rocks to indicate that the total volumes of phenocrysts and groundmass are nearly equal. (Ransome)

Señalamiento (Sp.). Marking on the surface the position of underground workings. (Halse)

Señalar (Sp.). 1. To mark out (mining) claims. 2. To signal. (Halse)

Senarmontite. Antimony trioxide, Sb_2O_3, in pearl colored isometric octahedra. *See* Valentinite. (Moses)

Seneca oil (U. S.). Petroleum, early used as a remedy among the Senecas and other Indians. (Webster)

Senile. Approaching the end of a cycle of erosion, as a senile topography. (Webster) *See* Old.

Senile river. In geology, a river in its later stage, rarely fully reached, characterized by a sluggish current having a tendency to meander through a pene-plane of slight relief in faint grades above base level, providing a slow discharge of rainfalls. (Standard)

Senile stream. A stream whose current has become enfeebled by reason of an approximation of its valley to base-level (Standard). *Compare* Senile river.

Senile topography. The physical aspect or conformation of land which approximates to a base-level plain. (Standard)

Senonian series. A division of the Upper Cretaceous of France and Belgium, used also somewhat in England; equivalent to the Upper Chalk of England. (Standard)

Señorial (Peru). Royalty paid by *busconeros* to the owners of reverberatory furnaces. (Halse)

Sensitiveness. The property in a high explosive that permits it to be exploded by a shock. The more insensitive an explosive is, the stronger detonator it requires to develop the full strength. (Du Pont)

Sentazón (Arg.). A slide or fall of rock. (Halse)

Separable tin (Eng.). An incorrect spelling of Sparable. *See* Sparable tin.

Separar (Sp.). To separate, classify, or sort. (Halse)

Separation coal (Eng.). Coal that has been prepared by screening or washing.

Separation doors (Eng.). Doors fixed underground between the intake and the return, near the shaft bottom. (Gresley)

Separation valve (Eng.). A massive cast-iron plate suspended from the roof of a return airway, through which all the return air of a separate district flows, allowing the air to always flow past or underneath it; but in the event of an explosion of gas the force of the blast closes it against its frame or seating, and prevents a communication with other districts. The blast being over, the weight of the valve causes it to return to its normal position, allowing the ventilation to continue. (Gresley)

Separator. 1. A machine for separating, with the aid of water or air, materials of different specific gravity. Strictly, a separator parts two or more ingredients, both valuable, while a concentrator saves but one and rejects the rest; but the terms are often used interchangeably. 2. Any machine for separating materials, as the magnetic separator for separating magnetite from its gangue. (Raymond)
3. A screen, especially a revolving screen for separating things like stones or coal into sizes. (Standard)

Sepé (Colom.). A layer of porphyritic iron-stained clay above the pay dirt. (Halse)

Se pierde (Sp.). A miner's phrase, meaning the vein is lost or comes to an end. (Halse)

Sepiolite. *See* Meerschaum.

Septarium. A roughly spheroidal concretion, generally of limestone or clay-ironstone, cut into polyhedral blocks by radiating and intersecting cracks which have been filled (and the blocks cemented together) by veins of some material, generally calcite. Plural, Septaria. Also called Septarian bowlder, Septarian nodule, and Turtle stone. (La Forge)

Sequence. Following; succession; coming after; continuation. (Roy. Com.)

Serape (Mex.). A narrow blanket worn by miners, peónes, etc. (Halse)

Seriate. A rock fabric in which the sizes of the crystals vary gradually, or in a continuous series. (Iddings, Igneous Rocks, p. 196)

Sericite. A talc-like hydrous mica (a variety of muscovite) occurring in small scales and forming sericitic schist. Often spoken of by prospectors as talcose schist, but this latter term properly applies to schists composed largely of talc, which are much rarer. (Roy. Com.)

Sericite-gneiss. Gneiss containing sericite in the place of the ordinary more coarsely crystalline muscovite. (Century)

Sericite-schist. Mica-schist whose mica is sericite. Sericite is also used as a prefix to many names of metamorphic rocks containing the mineral. (Kemp)

Sericitization. The development of sericite in schists and other rocks, due to metamorphism.

Series. In geology, the stratigraphic subdivision of the third rank, in the classifications in general use; a division of a system. The chronologic term of equivalent rank is Epoch. (La Forge)

Series copper-refining process. *See* Hayden, Smith, and Randolph processes.

Serpentine. 1. In mineralogy, a hydrous magnesium silicate, $H_4Mg_3Si_2O_9$, commonly green, greenish-yellow, or greenish-gray, and massive, fibrous, lamellar, or occurring as pseudomorphs. It is an important constituent of some metamorphic rocks and is everywhere secondary, after olivine, amphibole, pyroxene, etc. 2. In petrology, a metamorphic rock composed chiefly or wholly of the mineral serpentine. (La Forge)

Serpentine marble. *See* Verd antique.

Serpentine ware. A hard, green-spotted or green-veined pottery suggestive of serpentine (Webster). A variety of Wedgwood ware. *See* Pebble ware.

Serpentization. Alteration into serpentine, a common result of the metamorphism of ferro-magnesian minerals, especially olivine.

Serpent kame; Serpentine kame. *See* Esker.

Serrate. Notched or toothed on the edge like a saw (Webster). Frequently applied to mountain ranges, as Saw-tooth mountains.

Serrucho (Sp.). A handsaw with a small handle. (Halse)

Serve. To furnish; supply; as the gas wells *serve* the town with light and heat (Webster). Gas is said to "serve" when it issues more or less regularly from a fault-slip, a break, etc. (Gresley)

Service rails (Scot.). Rails used for a temporary purpose. (Barrowman)

Service road (Scot.). A temporary road. (Barrowman)

Serving (Corn.). A supply of tin ready for smelting. (Davies)

Set. 1. A timber frame for supporting the sides of a shaft or other excavation. Sometimes written Sett. 2. A group of pumps for lifting water from one level to another; a lift. 3. A group of mines under one lease. 4. A flat steel bar; a kind of crowbar. 5. A piece placed temporarily upon the head of a pile when the latter can not be reached directly by the weight or hammer. (Webster)
6. A train of mine cars; a trip. 7. To fix a prop or sprag in place. (Steel)
8. (So. Staff.) To mine the sides off and trim up a heading. 9. (No. of Eng.) To load a tub unfairly by placing the greater part of the coal on the top of it and leaving the bottom part comparatively empty. 10. (No. of Eng.) The natural giving way of the roof for want of support. 11. To make an agreement with miners to do certain work; *e. g.*, to set a stall. 12. (Mid.) A measure of length along the face of a stall, usually from, say, 6 to 10 feet, by which "holers" and "drivers" work and are paid. (Gresley)
13. The failure of a rock subjected to intense pressure below the point of rupture to recover its original form when the pressure is relieved. (Merrill)
14. The hardening of a plastic or liquid substance, as by chemical action (in case of mortar, cement, etc.) or by cooling, as in case of glue. (Webster)

Set coal (Leic.). Coal occurring near hollows and having a hard dead nature. (Gresley)

Set copper. Molten copper which, in the process of refining, has become saturated with cuprous oxide. (Eng. and Min. Jour. vol. 102, p. 875)

Set hammer. The flat-faced hammer held on hot iron by a blacksmith when shaping or smoothing a surface by aid of his striker's sledge. (C. and M. M. P.)

Set-off (Eng.). The part of a connecting-rod to which the bucket-rod is attached. (Bainbridge)

Set of timber. The timbers which compose any framing, whether used in a shaft, slope, level, or gangway. Thus, the four pieces forming a single course in the curbing of a shaft, or the three or four pieces forming the legs and collar, and sometimes the sill of an entry framing are together called a set, or timber set. (C. and M. M. P.)

Set-out (No. of Eng.). *See* Lay-out.

Set rider (Aust.). The man who accompanies a set of skips hauled by the main-and-tail-rope system, so that he can attend to any points on the track, unfasten the rope, and signal to the engine-driver as required (Power). The corresponding American term is trip rider.

Sett. 1. A quarryman's term for a square-faced steel tool which is held in position and struck with a sledge to cause a fracture in a rock mass. (Bowles)
2. *See* Set, 1.
3. (Corn.) A lease; the boundaries and terms of the mining ground taken by the adventurers. (Min. Jour.) *See* Set, 3.

Setter. A sagger made to hold one piece only of fine porcelain. (Standard)

Setters (No. of Eng.). Large lumps of coal placed round the sides of coal dealers' carts for the purpose of piling up a good load in the center. (Gresley)

Setting. 1. *See* Heading, 7. 2. *See* Square timbering. 3. (So. Staff.) *See* Double timber. 4. A group of retorts used in the manufacture of gas. (Webster)
5. (Eng.) The day and place of contracting with the men of a mine. 6. The act of contracting with miners for work to be done. (Standard)

Settle. 1. A term used to indicate the amount of vertical fire-shrinkage that takes place in a kiln full of bricks. (Ries)
2. To clear of dregs or impurities by causing them to sink, as of liquids. 3. To cause to sink; to depress; to render close or compact. (Webster)

Settle boards. 1. (No. of Eng.) Iron plates or sheets forming the floor of a heapstead, to admit of the tubs being pushed and turned about with facility (Gresley). Turn sheets.
2. (No. of Eng.) *See* Cage shuts. Also spelled Settle bords.

Settled production. The production of an oil well which, apart from the normal progressive annual dimunition, will last a number of years. (Redwood, p. 243)

Settler. A separator; a tub, pan, vat, or tank in which a separation can be effected by settling (Century). A tub or vat in which pulp from the amalgamating pan or battery-pulp is allowed to settle, being stirred in water, to remove the lighter portions. (Raymond)

Settlingite. *See* Settling stones resin.

Settling stones resin. A resinoid, hard, brittle substance, possessing a pale-yellow to deep-red color and a specific gravity of 1.16 to 1.54, and burning in a candle flame. It was found in an old lead mine in Northumberland, England. (Bacon)

Settling-vat. A vat in which particles of ore are allowed to settle. (Rickard)

Setts-off (Eng.). *See* Distance blocks.

Set-up. 1. In iron and steel manufacture, a machine for upsetting a bloom that has been lengthened by a squeezer. 2. An iron bolt or rod upset at one end. (Webster)
3. To place a drilling machine in position for drilling. 4. To orient a surveyor's transit over or under a point or station.

Seventy-two-hour coke. Owing to the suspension of labor on Sunday, an oven charged on Friday must necessarily go over to Monday, so that all charges made on Friday and drawn on Monday must be in the ovens 72 hours, and the coke resulting is called 72-hour coke. The 72-hour coke has higher ash, less volatile matter, less sulphur and is preferred for foundry purposes.

Sèvres. Sèvres porcelain. (Standard)

Sèvres blue (Fr.). 1. The lighter blue of the Sèvres porcelain, especially of pieces antedating the Revolution (1789) distinctively called *bleu céleste*. 2. The darker blue of Sèvres porcelain, distinctively called *bleu-du-roi*. (Webster)

Sèvres ware. A costly porcelain manufactured in Sèvres, France, especially in the National factory. (Webster)

Sewer brick. A general term applied to those common brick that are burned so hard as to have little or no absorption. They are, therefore, adapted for use as sewer linings. (Ries)

Shab (Som.). Friable, shaly rock. (Gresley)

Shack (Derb.). An irregular ore deposit. *See* Self-open. (Mander)

Shackle. A U-shaped link in a chain closed by a pin; when the latter is withdrawn the chain is severed at that point. (Steel)

Shadd (Corn.). Smooth, round stones on the surface, containing tin ore, and indicating a vein. (Raymond)

Shadoof. A counterpoised sweep used in Egypt and near-by countries for raising water, ore, etc. A hand whip.

Shadrach. *See* Salamander.

Shaft. 1. An excavation of limited area compared with its depth, made for finding or mining ore or coal, raising water, ore, rock, or coal, hoisting and lowering men and material, or ventilating underground workings. The term is often specifically applied to approximately vertical shafts, as distinguished from an incline or inclined shaft. 2. The interior of a shaft furnace above the boshes (Raymond). Compare Slop; Incline.
3. A wooden handle of a pick, etc.
4. (So. Wales) To pull or draw at a tub. (Gresley)

Shaft foot (Scot.). The bottom of a shaft. (Gresley)

Shaft furnace. A high furnace, charged at the top and tapped at the bottom. (Raymond)

Shaft house. A building at the mouth of a shaft, where ore or rock is received from the mine. (Weed)

Shaft kip (Eng.). *See* Kip.

Shaft lamp (Eng.). *See* Comet.

Shaft pillar. Solid material left unworked beneath buildings and around the shaft, to support them against subsidence (Steel). Also called High pillar.

Shaft rent (Eng.). 1. Rent paid for the use of a shaft for raising the minerals from another property. 2. Interest on capital invested in sinking a shaft. (Gresley)

Shaft set. A set of shaft timbers consisting of two wall plates, two end plates, and dividers which separate the shaft into two or more compartments.

Shaft station. An enlargement of a level near a shaft from which ore, coal, or rock may be hoisted and supplies unloaded.

Shaft tackle. A poppet-head (Standard). A headframe. *See* Poppet, 1.

Shaft tunnel (No. Staff.). Headings driven across the measures from shafts to intersect inclined seams. (Gresley)

Shaft walls. 1. The sides of a shaft. 2. (Newc.) Pillars of coal left near the bottom of a shaft. (Raymond)

Shaggy metal (Ches.). *See* Horse beans.

Shake. 1. A cavern, usually in limestone. (Raymond)
2. A close-joint structure in rock, due to natural causes, as pressure, weathering, etc. Used in the plural.

Shaking 1. The same as springing. *See* Shaking a hole. (Du Pont)
2. (Corn.) Washing ore (Min. Jour.). Ore dressing.

Shaking a hole. The enlargement of a blast hole, by exploding a stick of dynamite, so it will contain a larger amount of explosives for a big blast (Stanich *v.* Pearson Mining Co., 141 NW. Rept., p. 1100.) Also called a Shake blast. *See* Springing.

Shaking screen; Shaker. A flat screen, often inclined, which is given an oscillatory motion and is used for sizing coal. (C. and M. M. P.)

Shaking table. A slightly inclined table to which a lateral shaking motion is given by means of a small crank or an eccentric. One form is covered with copper plates coated with mercury for the purpose of amalgamatig gold or silver. Other forms are provided with ripples and used in separating alluvial gold. (Roy. Com.). Also used in ore dressing.

Shakudo (Jap.). A dark-blue alloy of copper with gold, used in Japanese metal work (standard)

Shale. A fine-grained, fissile, argillaceous, sedimentary rock characterized by rather fragile and uneven laminae and commonly a somewhat splintery fracture. Often, but incorrectly, called *slate* by miners, quarrymen, well-drillers, and others. (La Forge)

Shale naphtha. Naphtha obtained from shale oil. (Bacon)

Shale oil. A crude oil obtained from bituminous shales, especially in Scotland, by submitting them to destructive distillation in special retorts. (Bacon)

Shale-oil shale (Scot.). Shale yielding oil on distillation. This term was formerly used as signifying argillaceous rock. (Barrowman)

Shale spirit. The lower-boiling fractions obtained in the refining of crude shale-oil. (Bacon)

Shallow ground (Aust.). Land having gold near it's surface. (Standard)

Shaly. 1. Characteristic of, pertaining to, composed of, or resembling shale; having the characteristic structure and fissility of shale, as a *shaly* sandstone or limestone. (La Forge) 2. Brittle ground. (Ihlseng)

Shambles. Shelves or benches, from one to the other of which ore is thrown successively in raising it to the level above, or to the surface (Raymond). *See* Shammel.

Sham door (Eng.). A check or regulator door. (Gresley)

Shammel. 1. A stage for shoveling ore upon, or for raising water (Davies). *See* Shambles.
2. To work a mine by throwing the material excavated on to a stage or bench in the "cast after cast" method, which was the usual way before the art of regular mining by means of shafts had been introduced. (Century)

Shandy-gaff (Aust.). Shovel-filled coal (Power). Coal loaded by shovel without screening, hence containing an excess of fines. Run of mine coal.

Shangie (Scot.). A ring of straw or hemp put round a jumper in boring to prevent the water in the bore hole from splashing out. (Barrowman)

Shank. 1. (Scot.) A shallow shaft underground (Gresley). A winze.
2. The body portion of any tool, up from its cutting edge or bit. (C. and M. M. P.)
3. A ladle for molten metal, with long handles, for use by two or more men. (Webster)

Shanker (Scot.). A pit or shaft. (Barrowman)

Shanklin sand (Eng.). A marine deposit of siliceous sands and sandstone of various shades of green and yellow-gray. Also called Lower green-sand. (Humble)

Sharp gas (Eng.). Fire-damp that explodes suddenly within a safety lamp without showing any preceptible cap. Gas is sharp when at its most explosive point. (Gresley)

Shastalite. Wadsworth's name for unaltered, glassy forms of andesite. (Kemp)

Shasta series. The Lower Cretaceous of the Pacific coast, entirely marine, the Knoxville beds below, and the Horsetown above (Standard). Usage now obsolete.

Shatter. To break at once into pieces; to dash, burst, or part violently into fragments; to rend into splinters. (Webster)

Shattered zone. Applied to a belt of country in which the rock is cracked in all directions, resulting in a network of small veins. (Power)

Shaula (Braz.). A shovel. (Halse)

Shaven latten. Very thin sheet brass. (Standard)

Sheaf. A bundle or pile containing 30 ingots of steel. (Standard)

Shear. 1. To make into shear-steel by condensing blister steel and making it homogeneous. 2. To make vertical cuts in a coal seam that has been undercut. *See* Shearing, 1. (Standard)

Shearing. 1. The vertical side-cutting which, together with holing or horizontal undercutting, constitutes the attack upon a face of coal. 2. Cutting up steel for the crucible (Raymond). 3. The act of cutting a vertical groove in a coal face or breast. Called in Arkansas a *cut* or *cutting*. (Steel)
4. The deformation of rocks by cumulative small lateral movements along innumerable parallel planes, generally resulting from pressure, and producing schistosity, cleavage, minute plication, and other metamorphic structures. (La Forge)

Shear legs. 1. A high wooden frame placed over an engine or pumping shaft fitted with small pulleys and rope for lifting heavy weights (C. and M. M. P.). *See also* Shears, 1.
2. A tripod on which miners sometimes stand in drilling. (Standard)

Shears. 1. (Corn.) Two high timbers, standing over a shaft and united at the top to carry a pulley for lifting or lowering timbers, pipes, etc., of greater length than the ordinary hoisting gear can accommodate. (Raymond)
2. (Scot.) A haulage clip. (Gresley). Called also Sheers.

Shear steel. A steel produced by heating blister steel (sheared to short lengths) to a high heat, welding by hammering or rolling, or both, and finally finishing under the hammer at the same or slightly greater heat. (Webster)

Shear structure. In geology, a structure resulting from the shearing of rocks, as in crushing, crumpling, etc. (Webster)

Shear zone. In geology, a zone in which shearing has occurred on a large scale, so that the rock is crushed and brecciated. (La Forge)

Sheathing deals (Scot.). Deals (plank) nailed to cribs all round a shaft to preserve the cribs from injury and make the sides of the shaft smooth. (Barrowman)

Sheaths (Newc.). The upright framing of a coal wagon or car. (Min. Jour.)

Sheave. A wheel with a grooved circumference over which a rope is turned, either for the transmission of power or for hoisting or hauling (Chance). Any grooved wheel or pulley. (Webster)

Shed. 1. (Penn.) A kind of long car or trolley. 2. (Eng.) A thin, smooth parting in rocks, having both sides polished. 3. (Eng.) A very thin layer of coal. (Gresley)

Shed-line. The summit line of elevated ground; the line of a watershed. (Century)

Sheepbacks. *See* Roches montonnées.

Sheep silver (Scot.). Mica. (Standard)

Sheer legs. *See* Shear legs.

Sheers. *See* Shears, 2.

Sheet. 1. In iron and steel manufacture, a portion of metal less than about ¼ inch thick. That which is heavier is designated as *plate.*
2. In geology, an extensive bed of an eruptive rock intruded between, or overlying, other strata. (Webster)
3. (Aust.) A solid body of pure ore filling a crevice. (Power)
4. (Upper Mississippi lead region) Galena in thin and continuous masses. The ore itself is called *sheet* mifferal. (Century)

Sheet-asphalt pavement. A pavement having a wearing course composed of asphalt, cement and sand of predetermined grading, with or without the addition of fine material. (Bacon)

Sheet deposit. A mineral deposit extended in length and breadth and having relatively small thickness, thus including both lodes and beds as distinguished from irregular masses. The term has been sometimes applied in a more limited sense to deposits (called also blanket veins) occurring in an approximately horizontal plane. (Webster)

Sheet ground (Mo.). A term in the Joplin district applied to horizontal, low-grade, disseminated zinc-lead deposits, covering an extensive area. *See* Sheet deposit.

Sheet ice. Ice formed on a body of water by the cold air above it. (Standard)

Sheeting. The development, in rock formations, of small closely spaced parallel fractures. (Farrell)

Sheet iron. *See* Sheet, 1.

Sheet-iron pitch. The inclination of a coal seam at which loose coal will not move on the natural bottom, but at which it will slide or can be easily pushed along on iron slides placed on the bottom in the chambers or rooms.

Sheet metal. *See* Sheet, 1.

Sheet mineral. *See* Sheet, 4.

Sheet pile. Any of a number of thick boards or planks wedge-shaped at the lower end and sometimes tongued on one edge and grooved on the other, driven into the ground close together between gauged piles to form the walls of a cofferdam. A sheet-steel device is also used for the same purpose. (Webster)

Sheet quarry. A term often used in granite quarrying, to designate a quarry having strong horizontal joints and a few vertical ones. (Ries)

Sheets (Eng.). Coarse, cloth curtains or screens for directing the ventilation underground. *See* Brattice cloth. (Gresley)

Shelf (Corn.). 1. The solid rock or bed-rock, especially under alluvial tin-deposits. (Raymond)
2. A charging-bed in a furnace at a higher level than the working-bed. (Standard)
3. A rock, ledge of rocks, reef or sandbank in the sea. 4. A projecting layer or ledge of rock on land. (Century)

Shell. 1. A torpedo used in oil wells.
2. A metal or paper case which holds a charge of powder.
3. A thin, hard band or layer of rock encountered in well boring. (Redwood)

Shell band. *See* Mussel band.

Shell door (Eng.). A temporary door. (Gresley)

Shell limestone. A sedimentary rock composed chiefly of fragments of fossil shells. (La Forge)

Shell marble. An ornamental marble containing fossil shells. (Century)

Shell marl. A light-colored calcareous deposit in the bottoms of small lakes, composed largely of fresh-water shells, but apparently also to some extent of precipitated carbonate of calcium and the hard parts of minute organisms. (Roy. Com.)

Shell pump. A simple form of sand pump or sludger consisting of a hollow cylinder with a ball or clack valve at the botton, used with a flush of water to remove detritus. (Webster)

Shell sand. Sand chiefly or largely composed of fragments of shells. (Standard)

Shelly. A name applied to coal that has been so crushed and fractured that it easily breaks up into small pieces (Chance). Broken ground.

Shepherd (Aust.). A miner who preserves legal rights to a mining claim with the least amount of work on it. (Standard)

Shepherding (Aust.). Keeping possession of a mining claim by doing the least amount of work on it allowed by law. (Davies)

Sherardize. To galvanize by inclosing the articles to be treated, covered with a commercial zinc dust, in a tightly closed retort, heating and allowing to cool. (Webster)

Sherd. A fragment of pottery. In petrography applied particularly to the characteristic crescentic or cuspate particles into which volcanic glass is sometimes blown, while still hot, by the expansive force of included gases. The glass particles of tuff often show such cuspate outlines. (Ransome)

Sherman settler. A series of cylindrical tanks with conical bottoms having central feed and a peripheral overflow. The tanks continually decrease in depth and increase in diameter. (Liddell)

She's fired (Eng.). An expression used when an explosion of fire damp has taken place in the pit. *See* Squat lads. (Gresley)

Shet (So. Staff.). The broken-down roof of a coal mine. (Raymond)

Sheth. 1. (Eng.) An old term denoting a district of about eight or nine adjacent bords. Thus a "sheth of bords," or a "sheth of pillars." (C. and M. M. P.)
2. (No. of Eng.) To course the air in the workings. *See* Coursing. 3. (No. of Eng.) The rib of a chaldron wagon. *See* Shearbs (Gresley)

Sheth door (No. of Eng.). A temporary door placed in a working heading. (Gresley)

Shething the air (No. of Eng.). Ventilating the goaves in a systematic way. (Gresley)

Sheth of bords (Eng.). *See* Sheth, 1.

Sheugh. 1. (Scot.). To make ditches or drains in; to dig, as peat, by making ditches (Webster). Also Sheuch.
2. (Scot.) A shaft or coal pit. (Gresley)

Shicer (Aust.). An unproductive mine (Webster). A mining claim without gold. (Standard)

Shides (Brist., Scot.). Pumps for draining mines. (Gresley)

Shield. In mining or tunneling, a framework or screen of wood or iron protecting the workers, pushed forward as the work advances. (Standard)

Shift. 1. The length of time a miner works in one day. 2. The gang of men working for the period; as the day shift, the night shift. (Hanks)
3. A fault of dislocation. (Gresley)
4. The maximum relative displacement of points on opposite sides of the fault and far enough from it to be outside the dislocated zone. Also called Net shift. *See* Strike shift, Dip shift, Normal shift, and Vertical shift. (Lindgren, p. 122)

Shift boss. The foreman in charge of a shift of men. (Raymond)

Shifter. 1. *See* Bottomer. 2. (No. of Eng.) One who repairs roadways in a mine. (Gresley)
3. (Newc.) A man who prepares the working places in a coal mine at night. (Min. Jour.)

Shift-joint. In masonry, a break-joint. (Standard)

Shiftmen (Aust.). Men engaged on a time-wage basis working at various jobs (Power). Also called Company men.

Shiftwork (Eng.). Work performed underground for which wages are paid on a time basis; *e. g.*, timbering, road cleaning, etc. (Gresley)

Shindle. A roofing slate. (Standard)

Shingle. 1. Loosely and commonly, any beach gravel which is coarser than ordinary gravel, especially if consisting of flat or flattish pebbles. 2. Strictly and properly, beach gravel composed of smooth, well rounded pebbles of roughly the same size, the interstices between which are not filled with finer material as in ordinary gravel, and which gives out a musical note when trod upon. (La Forge)
3. In iron manufacture, to drive out scoriae and other impurities from (puddled iron) by heavy blows or pressure. (Standard)

Shingler. A machine for squeezing puddled iron; also, the workman who attends such a machine. (Standard)

Shingle tile. A flat form of roofing tile. (Ries)

Shingley coal (Newc.). Small coal free from dust. (Min. Jour.)

Shingling. Hammering blooms, billets, etc. (Raymond). Called also Blooming.

Shingling hammer. A tilt-hammer for making blooms. (Standard)

Shingling tongs. Large tongs for handling blooms in shingling. (Standard)

Shingly. Composed of, or abounding in, shingle or coarse detritus (Webster. *See* Shingle, 1.

Shining. As applied to the degree of luster of minerals, means those which produce an image by reflection, but not one well defined, as celestite. (Dana)

Shipper. 1. (Aust.). An instrument used for placing an endless rope on its rollers in cases where it gets off them. (Power)
2. (U. S.) *See* Snowbird mine.

Shipping ore. Any ore of greater value when broken than the cost of freight and treatment. (Morrison)

Ship plate. Low-grade iron plate. (Standard)

Ship-po. In ceramics, Japanese cloisonné-enamel ware. (Standard)

Shirt. The inner lining of a blast furnace. (Standard)

Shist. *See* Schist.

Shiver. 1. Shale; a hard argillaceous bed. *See* Sheave. (Raymond)
2. A variety of blue slate. (Standard)

Shiver spar. A variety of calcite, of slaty structure; slate spar. (Webster)

Shivery post (Eng.). *See* Scamy.

Shoad. *See* Shode.

Shock-proof. As applied to the current-carrying parts of an electric system (excepting trolley wires) is taken to mean that contact with such parts is prevented by the use of grounded metallic coverings or sheaths. (H. H. Clark)

Shode. 1. (Corn.) A loose fragment of vein stone. Ore washed or detached from the vein naturally. *See* Float ore.
2. (Eng.) To search for ore by tracing the shode (Webster). Spelled also Shoad.

Shode-pit. An excavation made in tracing shodes. (Standard)

Shoder. The package of gold-beaters' skin in which the thin metal sheets are hammered in the second stage of making gold-leaf. (Standard)

Shode stone. *See* Shode, 1.

Shoding; Shoading (Corn.). The tracking of bowlders toward the vein or rock from which they have come. (Raymond)

Shoe. 1. A piece of iron or steel, attached to the bottom of a stamp or muller, for grinding ore. The shoe can be replaced when worn out. (Raymond)
2. The bottom wedge-shaped piece attached to tubbing when sinking through quicksand. 3. Steel pieces fastened to the ends or sides of cages, which slide on guides when the cage is in motion. (Power)
4. In glass-making, a small opening into which the blower passes his rod to heat it. (Webster)
5. A trough to convey ore to a crusher. 6. A boat-shaped ingot of sycee silver weighing about 66½ ounces. (Standard)

Shoe-nose shell. A cylindrical tool, cut obliquely at bottom, for boring through hard clay. (Raymond)

Shoe shell (Eng.). A tool used in deep boring for cleaning out the drill cuttings. It has a valve at the bottom, opening upward (Gresley) A sand pump or bucket.

Shoes of silver (E. Asia). Ingots of precious metal popularly thought to resemble a shoe. (Standard)

Shoe-string claim. A mining claim in the form of a long narrow strip. (Hanson *v.* Craig. 170 Fed. Rept., p. 65; Snowflake Fraction Placer, 37 Land Decisions, p. 250). (U. S. Min. Stat., p. 538)

Shonkinite. A name given by Weed and Pirsson to a rock from the Highwood Mountains, Mont., which they define as "a granular, plutonic rock consisting of essential augite and orthoclase, and thereby related to the syenite family. It may be with or without olivine, and accessory nepheline, sodalite, etc., may be present in small quantities." (Kemp)

Shoo-fly. Any crosscut between a haulageway and airway through which cars are run. *See also* Slant, 1.

Shoot. 1. *See* Chute, 1. 2. *See* Blast. A shot is a single operation of blasting. 3. An elongated body of ore. *See* Chute, 2. (Raymond) 4. To torpedo an oil or gas well.

Shooter. 1. (Aust.) The man who fires a charged hole after satisfying himself that the place is free from fire damp (Power). A shot firer.
2. In the petroleum industry, one who shoots oil wells with nitroglycerin to loosen or shatter the oil-bearing formation.

Shooting (Eng.). Blasting in a mine. (Gresley)

Shooting a well. Exploding a charge of nitroglycerin in a drill hole, at or near an oil-bearing stratum, for the purpose of increasing the flow of oil.

Shooting fast (Lanc.). Blasting without previously holing or shearing the coal (Gresley). *See* Shooting off-the-solid.

Shooting-needle. A blasting needle; a metallic rod used in the stemming of a drill hole for the purpose of leaving a cavity through which the charge may be fired. (Century)

Shooting off-the-solid. Mining the coal by heavy blasting without undermining or shearing it (Steel). In England called Shooting fast.

Shooting on-the-free. The use of a small charge of powder to blow down the face of the coal after it has been undercut as distinguished from "shooting off-the-solid." (Andricus *v.* Pineville Coal Co., 121 Kentucky, p. 728)

Shooting the gob (No. Staff.). Working the coal in the pillars of inclined coal beds by blasting. (Gresley)

Shoot of ore. A body of ore with relatively small horizontal dimensions and steep inclination in a lode; in contradistinction to a *course of ore*, which is flatter (Power). *See* Chute, 5.

Shop. In glass-making, a team of workmen. (Standard)

Shore (Eng.). A studdle or thrusting stay. (C. and M. M. P.)

Shore terrace. A terrace made along a coast by the action of waves and shore currents; it may become land by the uplifting of the shore or the lowering of the water. (Webster)

Shore up. To stay, prop up, or support by braces. (Steel)

Shorn (Eng.). Cut with a pick, as in undercutting coal. (Gresley)

Short. Brittle; friable; breaking or crumbling readily; inclined to flake off (Century). Said of coal.

Short and rough. Unmellowed, as by weathering, said of brick clay, as distinguished from *mild and tough*. (Standard)

Short-fire. *See* Underfire, 1.

Short-fired. Not enough baked; underfired; said of porcelain, etc. (Standard)

Short-flame explosive. *See* Permissible explosive.

Short fuse. 1. Any fuse that is cut too short. 2. The practice of firing a blast, the fuse on the primer of which is not sufficiently long to reach from the top of the charge to the collar of the bore-hole. The primer, with fuse attached, is dropped into the charge while burning, and tamping may, or may not, be attempted. It is an exceedingly dangerous practice. (Du Pont)

Short hole. A blast-furnace tap-hole with a short stopping which may break out unexpectedly when drilled into. (Willcox)

Short leg. One of the wires on an electric blasting cap, which has been shortened so that when placed in the bore-hole, the two splices or connections will not come opposite each other and make a short circuit. (Du Pont)

Shorts. 1. The product remaining on the screen when the material collected from the zinc boxes of a cyanide mill is rubbed over a sieve. *See* Fines. (Clennell)
2. (Eng.) The contents of cars filled with coal, or coal and dirt mixed, otherwise than in accordance with the colliery regulations. 3. (Eng.) Deficiency of mineral worked under a lease during any year or other period agreed upon. (Gresley)

Short stall (Mid.). A single-road stall. (Gresley)

Short ton. A ton of 2,000 pounds avoirdupois, a long ton being 2,240 pounds avordupois. Also called Net ton.

Shortwall machine. A coal cutter for use in bords, which when once the cutting part has made the sumping cut, is drawn across the face automatically by ropes, undercutting as it proceeds. (Power)

Short workings (Eng.). *See* Shorts, 3.

Shoshonite. 1. An aphanorphyric igneous rock composed essentially of dominant andesine and oligoclase and subordinate orthoclase, augite, and olivine. (La Forge) 2. A general name proposed by Iddings for a group of igneous rocks in the eastern portion of the Yellowstone Park. They are porphyritic in texture, with phenocrysts of labradorite, augite, and olivine, in a groundmass that is glassy or crystalline; in the latter case orthoclase and leucite, alone or together, are developed. The rocks are to be considered in connection with absarokite and banakite. (Kemp)

Shot. 1. A charge or blast. *Balanced shot*, a shot so placed that the hole containing the powder is parallel to one face of the coal to be broken. *Blown-out shot*, a shot which merely throws out the stemming without loosening much coal. *Cutting shot*, a shot arranged to loosen the coal prepared by the cutting and to scatter the coal in advance to facilitate the making of another cutting. *Gouging shot* (Ark.), a gripping shot or opening shot in a straight face, as to start a break-through. *Gripping shot*, a shot which is farther from the face of the coal at the point than at the heel; also called *wedging shot*. *Opening shot*, the first gripping shot fired, in a straight face of coal. *Slitting shot*, a shot put into a large mass of coal detached by a previous blast. *Windy shot*, a shot which causes a concussion in the air, usually by an excessive amount of powder behind an easily loosened mass of coal 2. The firing of a blast. 3. Injured by a blast. (Steel)
4. A small globular mass, or pellet, of metal, *e. g.*, steel, and as such used in drilling operations. *See* Adamantine drill.

Shot copper. Small rounded particles of native copper, somewhat resembling small shot in size and shape. (Weed)

Shot drill. An earth-boring drill using steel shot as an abrasive. *See* Adamantine drill.

Shot-fast. Coal mined by blasting. (Gresley) Shot-off-the-solid.

Shot firer. A man whose special duty is to fire shots or blasts, especially in coal mines. Also Shot lighter (Hargis). Called Shooter in Australia.

Shot hole. The borehole in which an explosive is placed for blasting. (Gresley)

Shot lighter. *See* Shot firer.

Shot metal. An alloy of 98 per cent lead and 2 per cent arsenic, for making small shot. (Webster)

Shot samples. Samples taken for assay from molten metal by pouring a portion into water to granulate it. (Webster)

Shotty gold. Small granular pieces of gold resembling shot. (C. and M. M. P.)

Shoulder cutting (So. Staff.). Cutting the sides of the upper lift of a working place in a thick-coal colliery next the rib, preparatory to breaking the coal. (Gresley)

Shovel-filled (Aust.). Run-of-mine coal as broken at the face. (Power)

Show. 1. The pale-blue, lambent flame on the top of a common candle flame, indicating the presence of fire damp (Raymond). A "show of gas" is a phrase denoting a quantity just sufficient to form a perceptible cap above the flame of a lamp or candle.
2. The first appearance of float, indicating the approach to an outcropping vein or seam. *See* Blossom. (C. and M. M. P.)

Shrinkage-crack. One of a series of cracks, or of filled-up cracks, often seen on rock surfaces; supposed to have resulted from the drying and

shrinking of the layer while it was plastic mud. Called also Sun-crack. (Standard)

Shrinkage stoping. Also known as "back stoping," "shrinkage with waste fill," "overhand stoping with shrinkage and delayed filling," and "overhand stoping with shrinkage and no filling." The method is a modification of overhand stoping and its characteristic is the use of a part of the ore for the purpose of support and as a working platform. As applied to small ore bodies two modifications are used: stoping without ore passes (chutes) and stoping with ore passes (surplus ore is removed by means of the ore passes). As applied to large ore bodies the stopes are separated by pillars or ribs and the name used is "shrinkage stoping with alternate pillar and stope." (Young)

Shrinkage with waste fill. *See* Shrinkage stoping.

Shropshire method. *See* Longwall method.

Shroud. A housing or jacket (Chance). Especially a housing around gear wheels.

Shut; Shutt (So. Staff.). 1. The crushed and broken-down roof of a seam of coal. 2. Old workings. *See* Goaf, 1. (Gresley)

Shutdown. A term denoting that work has been temporarily stopped, as on an oil well. *See* Standing. (Redwood)

Shute. *See* Chute.

Shut-in. In geology, a narrow gorge cut by a superposed stream across a ridge of hard rock between broad valleys of softer rock on each side of the ridge. (Standard)

Shuts (Scot.). Movable or hinged supports for the cage at a shaft landing (Barrowman). Also called Keps, Keeps, Chairs, Dogs, Seats.

Shutter. 1. A movable sliding door, fitted within the outer casing of a Guibal or other closed fan, for regulating the size of the opening from the fan, to suit the ventilation and economical working of the machine. 2. A slide covering the opening in a door or brattice, and forming a regulator for the proportionate division of the air current between two or more districts of a mine. (Steel)

Shuttles (Lanc.). Natural cracks running at right angles to the dip of the strata. (Gresley)

Shut up. 1. To weld together, as pieces of metal. 2. To condense, as porous metal, by hammering or pressure. (Standard)

Siam ruby. A name sometimes erroneously applied to the dark ruby spinel found with the rubies of Siam. (Century)

Siberian aquamarine. A blue-green beryl found in Siberia. (Century)

Siberian ruby. Rubellite; a red variety of tourmaline found in Siberia. (Power)

Siberite. A violet-red variety of Rubellite (Dana) *See* Siberian ruby.

Sickening. The flouring of mercury. *See* Floured.

Sicker. *See* Zighyr.

Sicilian oil. Petroleum. It was used, under this name, for illuminating purposes at Agrigentum, Sicily, before the beginning of the Christian era (Bacon)

Siddle. The inclination of a seam of coal. (Raymond)

Side. 1. The more or less vertical face or wall of coal or goaf forming one side of an underground working place. 2. (Lanc.) A district. (Gresley)
3. The wall of a vein. (Power)

Side adits. A side passage sometimes made when the main adit is choked with waste rock. (Davies)

Side-basse. A transverse direction to the line of dip in strata. (Raymond)

Side chain. A chain hooked on to the sides of cars running on an incline or along a gangway, to keep the cars together in case the coupling breaks. (Steel)

Side-dumper. An ore, rock or coal car that can be tilted sidewise and thus emptied.

Side guide. *See* Guard, 1.

Side-laning (So. Staff.). The widening of an abandoned gate road, and making it part of the new side of work. (Min. Jour.)

Side lengths. *See* Lengths.

Side line. 1. A line attached to the side of a dredge and used to hold the dredge in place during operations. (Weatherbe)

2. A surface line on each side of the middle of the vein which measures the length of the claim along the vein. It bounds the side of the claim. (Argentine Mining Co. *v.* Terrible Mining Co., 122 United States, p. 485)

Sidelong reef. An overhanging wall of rock in alluvial formations extending parallel with the course of the gutter; generally only on one side of it. (C. and M. M. P.)

Side of work (So. Staff.). The series of breasts and pillars connected with a gate road in a colliery. (Raymond)

Side-over (No. of Eng.). To cut or drive in a line with the cleat through a pillar of coal when robbing pillars. (Gresley)

Side plate. In timbering, where both a cap and a sill are used, and the posts act as spreaders, the cap and the sill are spoken of as the side plates. *See* End plate, *also* Wall plate. (Sanders, p. 10)

Sidergia (Sp.). Metallurgy of iron. (Halse)

Siderite. 1. Spathic iron ore. Iron carbonate, $FeCO_3$. Contains 48.2 per cent iron (U. S. Geol. Surv.) Also called Chalybite; Sparry iron ore; Spathic iron.
2. An indigo-blue variety of quartz.
3. An iron meteorite. (Standard)

Siderocconite. A variety of calcite colored yellow or yellowish-brown by hydrated iron-oxide. (Century)

Siderodot. A calciferous variety of siderite. (Chester)

Sideroferrite. A name given to native iron found in petrified wood. (Chester)

Siderography. Art of engraving on steel. (Webster)

Siderolite. As used by Fletcher and generally in English, is a name for meteorites that are partly metallic iron and partly silicates. As used by others, it is applied to more purely metallic ones. (Kemp)

Sideromagnetic. Same as Paramagnetic.

Sideromelane. A basaltic glass from the palagonite tuffs of Sicily. (Kemp)

Siderophyllite. A black variety of biotite in which the magnesium is partly replaced by ferrous iron. (Standard)

Siderosa (Sp.). Spathic iron ore; siderite. (Halse)

Sideroscope. An instrument for detecting small quantities of iron by the magnetic needle. (Webster)

Siderosis. A lung disease due to inhaling particles of metallic iron. (Century)

Siderotechny. The art of working iron. (Standard) Usage now obsolete.

Siderurgy. The metallurgy of iron and steel. (Webster) Usage now obsolete.

Sides (N. Y. and Pa.). A local term applied by bluestone quarrymen to open joints that extend east and west. (Bowles)

Side shear. *See* Grip, 3.

Side spit. The emission of sparks through the sides of a burning fuse. (Du Pont)

Side stoping. *See* Overhand stoping.

Side-wafer; Side-waver (No. of Eng.). 1. Overhanging stones or roof in underground roads liable to drop. 2. A fall of fire clay. (Gresley)

Siding over. A short road driven in a pillar in a headwise direction. (C. and M. M. P.)

Siding tile. Any roofing tile employed for upright work. (Ries)

Siegburgite. A fossil resin from the brown coal near Bonn, Germany; it varies in color from golden yellow to brownish red, and is partly soluble in alcohol and ether. (Bacon)

Siege. The floor of a glass furnace. (Standard)

Siemens and Halske process. A metallurgical process for the recovery of copper. Copper sulphides are dissolved by solutions of ferric sulphate containing free sulphuric acid. The solution is then electrolyzed in a tank having a diaphragm. Copper is deposited and ferric sulphate regenerated. (Liddell)

Siemens direct process. A process for making wrought iron directly from iron ore, without the previous production of pig iron. (Standard)

Siemens furnace. A reverberatory furnace, heated by gas, with the aid of regenerators. (Raymond)

Siemens-Martin process. The production of steel in a reverberatory furnace by oxidation of the impurities by oxides added (either the rust on scrap, or mill scale, or pure ores). It may be conducted either on an acid or a basic lining (Liddell). *See also* Open-hearth process.

Siemens-Martin steel. Steel in which pig iron is decarburized by the Siemens-Martin process (which *see*). (Standard)

Siemens producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 311)

Siemens-Silesian furnace. A Silesian zinc-distillation furnace employing the Siemen's system of heat recuperation. (Ingalls, p. 409)

Sienita (Sp.). Syenite. (Dwight)

Sienna. A brownish orange-yellow clay colored by iron and manganese oxides. Used as a pigment. (U. S. Geol. Surv.)

Sienna marble. One of the most highly esteemed of marbles for interior decoration. The prevailing color is yellow, but often variegated with white and violet or purple. From Monte Arenti, in Montagnola, Tuscany. (Merrill)

Sierra (Sp.). A saw. A chain of hills or mountains; used as part of the name of many mountain chains, as *Sierra* Nevada. (Century)

Sieve. The screen or grating fixed in a stamp-box. Any screen.

Sieve mesh. The length of the side of a hole in a sieve (Hunt). *See* Mesh, 1.

Sieve raggings (Eng.). Pieces of ore deposited at the bottom of a sieve. (Hunt)

Sifón (Sp.). 1, Downtake of blast furnace. 2. A siphon. (Dwight)

Sigger. *See* Zighyr.

Sight. 1. A bearing or angle taken with a compass or transit when making a survey. 2. Any established point of a survey (Steel). A bob or weighted string hung from an established point in the roof of a room or entry, to give direction to the men driving the entry or room. (C. and M. M. P.)

Sigillated ware. Pottery decorated with stamped patterns; stamped ware. (Standard)

Sigillation. Decoration of pottery with stamped patterns. (Standard)

Sigmoidal fold. A reversed or inverted fold; a mass of strata which as the result of crust movements have been turned back on themselves into a form resembling the Greek letter sigma (Century). Usage obsolete.

Signal bell, or Hammer (Scot.). A bell or other appliance for signaling in mine shafts or on haulage roads. (Barrowman)

Signal wire (Scot.). Thin wire strand used for operating signal hammers and bells. (Barrowman)

Sil (L.). Yellow ocher. (Standard)

Silesian furnace. A rectangular, combustion chamber containing about 20 muffles for the distillation of zinc. The furnaces are commonly built in pairs with chambers between each for the calcination of the ore. (Ingalls, p. 396)

Silesian method. A metallurgical process characterized by a large charge of lead ore, slow roasting, and a low temperature. It is not aimed to extract all the lead in the reverberatory, as this is supplemented by the blast furnace. The hearth is inclined toward the flue, beneath which the lead is collected and tapped at intervals into an outside kettle. (Hofman, p. 105)

Silex. *See* Silica, 1.

Silica. 1. An oxide of silicon, SiO_2. Occurs in nature as a mineral of economic importance in quartz, chalcedony, chert, flint, opal, diatomaceous earth and sandstone. The most abundant constituent of the earth's crust. *See also* Agate, Quartz, Glass sand (U. S. Geol. Surv.). Also known as Silex, and used for lining tube mills.
2. (Local, U. S.) Very fine white disintegrated chert, used in pottery manufacture.

Silicalite. Wadsworth's name for rocks composed of silica, such as diatomaceous earth, tripoli, quartz, lydite, jasper, etc. (Kemp)

Silicate. 1. A salt or ester of any of the silicic acids. In mineralogical chemistry the silicates are of great importance, forming by far the largest group of minerals. (Webster)
2. A term used in the Joplin (Mo.) district for zinc carbonate.

Silicate cotton. Slag wool; mineral wool.

Silicated marble. A marble that contains silicates such as pyroxenes, amphiboles, mica, or chlorite. (Bowles)

Silicatization. The process of changing to a silicate. (Standard)

Siliceous. Of or pertaining to silica; containing silica, or partaking of its nature (Webster). Containing abundant quartz. Also spelled Silicious.

Siliceous sinter. *See* Fiorite.

Silicic. 1. In petrology, containing silica in dominant amount. 2. In chemistry, containing silicon as the acid-forming element. (La Forge)

Silicic acid. 1. Same as silica. 2. An amorphous gelatinous compound (H_4SiO_4), consisting of silica and water, into which constituents it readily decomposes. Called also Orthosilicic acid. (Standard)

Silicification. The entire or partial replacement of rocks and fossils with silica, either as quartz, chalcedony, or opal. (Kemp)

Silicified. Made into silica. Organic remains, both plant and animal, are often thus converted. (Winchell)

Silicified wood. *See* Wood, 2.

Silicious. *See* Siliceous.

Silicon. A nonmetallic element occurring abundantly in nature, being, next to oxygen, the chief elementary constituent of the earth's crust. As separated, it forms a grayish-white metallic-looking mass. Symbol, Si; atomic weight, 28.3; specific gravity, 2.34. (Webster)

Silicon bronze. A very strong, practically noncorrosive alloy of copper, tin, and silicon. (Webster)

Silicon copper. An alloy of copper (80–70 per cent) and silicon (20–30 per cent) used as an ingredient to free molten copper or brass from oxygen. (Webster)

Silicon iron. Iron containing 2 to 15 per cent of silicon, for improving cast iron; ferrosilicon. (Standard)

Siliconize. To unite or cause to unite with silicon, as in the combination of iron with silicon in certain metallurgical processes. (Standard)

Silicon spiegel. A spiegeleisen containing 15–20 per cent of manganese and 8–15 per cent of silicon used in making certain special steels. (Webster)

Silicon steel. A variety of steel containing considerable silicon, usually 2 to 3 per cent. It is very hard, but brittle, and difficult to work. (Webster)

Silicon ware. A slightly glazed stoneware made at Lambeth, England. (Standard)

Silicosis. An affection of the lungs occurring in stonecutters, caused by the inhalation of quartz dust (Webster). The term applies to miners also.

Silk. A silky luster in some precious stones, as the ruby; due to microscopic crystals. (Standard)

Silky. Having the luster of silk, like fibrous calcite, fibrous gypsum. (Dana)

Sill. 1. An intrusive sheet of igneous rock, of approximately uniform thickness, which is slight compared with the lateral extent, forced between level or gently inclined beds. (La Forge)
2. A piece of wood laid across a drift to constitute a frame with the posts and to carry the track of the tramway. (Raymond)
3. (Cumb., York.) Much the same as Clunch, Spavin, Warrant. (Gresley)
4. The floor of a gallery or passage in a mine. (Standard)

Silla (Sp.). 1. A chair. 2. A saddle. 3. A leather strap to protect the shoulders when carrying ore. (Halse)

Sillimanite; Fibrolite. A basic orthosilicate of boron and calcium, $H_2O.2CaO.B_2O_3.2SiO_2$. (Dana)

Sillite. Gümbel's name for a rock from Sillberg, in the Bavarian Alps, variously referred by others to gabbro, diabase, mica-syenite, and mica-diorite. (Kemp)

Silt. 1. A general name for the muddy deposit of fine sediment in bays or harbors, and one much employed in connection with engineering enterprises. (Kemp)
2. A name applied to the fine materials such as culm, ashes, etc., that are flushed into a mine in hydraulic mine-filling.

Silting. *See* Hydraulic mine-filling.

Silundum. A trade name for a form of silicon carbide; produced in an electric furnace, and possessing great hardness, high electrical resistance, and not subject to oxidation below 2,912° F. (Webster)

Silurian. The third in order of age of the geologic periods comprised in the Paleozoic era, in the nomenclature in general use. Also the system of strata deposited during that period. (The above usage, in which the term is restricted to the period following the Ordovician and preceding the Devonian, is the one now prevalent. Formerly Silurian included what is now called Ordovician, and it has been used by some geologists to include the Cambrian also.) (La Forge)

Silver. A white metallic element, sonorous, ductile, very malleable, and capable of a high degree of polish. Symbol, Ag; atomic weight, 107.88; specific gravity, 10.5. (Webster)

Silver glance. The native silver sulphide, Argentite.

Silvering. 1. A plating or covering of silver or an imitation of it, as applied to any surface; as, the *silvering* on the back of a mirror. 2. The art or process of coating surfaces with, or as with, silver. (Standard)

Silver-king (Colloq. U. S.). A wealthy silver-mine owner. (Standard)

Silver lead. Lead containing silver. (Standard)

Silver mill. The mill or metallurgical plant used in treating silver ores by either the wet or dry process. (Century)

Silver ores. Sometimes found native. *See* Acanthite, Amalgam, Argentite, Brongniardite, Bromyrite, Calaverite, Cerargyrite, Dyscrasite, Electrum, Embolite, Freibergite, Freieslebenite, Hessite, Iodyrite, Krennerite, Nagyagite, Petzite, Polybasite, Proustite, Stephanite, Stetefeldite, Stromeyerite, Sylvanite, Xanthoconite. (U. S. Geol. Surv.)

Silver plate. Ware plated with silver. (Standard)

Silver powder. A powder used in japanning, composed largely of bismuth, tin, and mercury; also, finely precipitated silver for electroplating. (Standard)

Silver sand. A sharp fine sand of a silvery appearance used for grinding lithographic stones, etc. (Century)

Silver-solder. A silver alloy of comparatively low fusibility, used by silversmiths. (Standard)

Silver State. Nevada. So called by reason of the large production of silver from the Comstock lode.

Silver-steel. An alloy of steel with a very small quantity of silver. (Standard)

Silvery iron. A light-gray, fine-grained quality of cast iron. (Standard)

Simetite. A resin near succinite from near Mt. Etna, Sicily; it is remarkable for its deep red color, contains but 0.4 per cent of succinic acid, and has a specific gravity of from 1.052 to 1.068. (Bacon)

Similor. A golden-colored variety of brass (Ure). Also called Mannheim gold; Prince Rupert's metal.

Simple alloy steel. An alloy steel containing one alloying element, as for example, simple nickel steel (Hibbard). *See also* Ternary steel.

Simple mineral. mineral found in nature, as distinguished from rocks, which, in the scientific sense, are mixtures of minerals (Standard). Calcite and hematite are simple minerals, while granite is a mixture of three simple minerals—quartz, feldspar, and mica.

Simple steel. A steel consisting chiefly of iron and carbon. Other elements are always present, but are not essential to the formation of the steel. The content of carbon may be very small. Often called Carbon steel.

Simple vein. A vein composed of homogeneous, not banded, material (Standard). A vein composed of one mineral, as pyrite, fluorite, hematite, etc.

Sinaite. An alliterative substitute for syenite proposed by Rozieres because on Mt. Sinai, true quartzless syenites occur, whereas at Syene the rock is a hornblende-granite (Kemp)

Sing. A hissing noise often made by gas and water when a seam of coal is cut into. (Gresley)

Singing coal (Eng.). A bed of coal from which gas escapes with a hissing sound, particularly if the surface be wet. (Gresley)

Singing lamp (Eng.). A form of safety lamp which, when placed in an atmosphere of explosive gas, gives out a peculiar sound or note, the strength of the note varying in proportion to the percentage of fire damp present. (Gresley)

Single-bench quarrying. Quarrying a rock ledge as a single bench the full height of the quarry face. (Bowles)

Single entry. A system of opening a mine by driving a single entry only, in place of a pair of entries. The air current returns along the face of the rooms, which must be kept open. (Steel)

Single-entry room-and-pillar mining. *See* Room-and-pillar method.

Single-intake fan. A ventilating fan that takes or receives its air upon one side only. (C. and M. M. P.)

Single-jack. A light single-hand hammer used in drilling, especially in metal mines. The hammer is used in one hand while the drill is held by the other.

Single-road stall. (So. Wales). A system of working coal by narrow stalls. (Gresley)

Single-rope haulage. A system of underground haulage in which a single rope is used, the empty trip running in by gravity. Engine-plane haulage. (C. and M. M. P.)

Single shot. A charge in one drill hole only fired at one time as contrasted with a multiple shot where charges in a number of holes are fired at one time. (Bowles)

Single-stall working. *See* Room-and-pillar method.

Single stamp-mill. A lonely mill, like some to be seen in the deserts of Nevada. (Rickard)

Single-stamp mill. A mill possessing batteries of one stamp each, like the Nissen, instead of the usual five. (Rickard)

Single-stamp-mill. A mill possessing only one stamp, after the Lake Superior fashion, where one big stamp does the work of 150 ordinary gravity stamps. (Rickard)

Sink. 1. Any slight depression in the land surface, especially one having no outlet; one of the hollows in limestone regions (limestone sink) often communicating with a cavern or subterranean passage so that water running into it is lost. Also called Sink hole, Swallow hole. 2. (Corn.) A preliminary excavation or pit to be enlarged in working till it is a full-sized shaft; a sump. (Webster)
3. To excavate strata downward in a vertical line for the purpose of winning and working minerals. 4. To bore or put down a borehole. (Gresley)
5. The depression in a shaft made by a center-blast. (Standard)

Sinker. 1. (Eng.) A man who works at the bottom of a shaft when a shaft is being sunk. 2. A special movable pump used in shaft sinking. (Gresley)
3. *See* Sinker bar.

Sinker bar. A bar added to the drill tools simply to give the required force to the upward jar. It is never allowed to pound upon the drill. (Chance)

Sinker-bar guides. Bars of iron (usually 4) fitted to the drill tools in order to increase their girth and render it impossible for the drill to deviate. (Mitzakis)

Sinkers' hat (Scot.). An oilskin or leather hat used for working in falling water, as in wet shafts. (Barrowman)

Sink hole. A vertical hole worn by by water into limestone rock along a joint or fracture. Such a hole usually is connected with an underground channel. The caving in of the roof may cause more depression and the formation of a pond. The course of a joint is often marked by a row of sink holes. Called also Sink; Swallow-hole (Standard). *See* Sink, 1.

Sinking bogie (Scot.). A wheeled platform to cover a shaft while the bucket is being emptied. (Barrowman)

Sinking fire. A forge in which wrought-iron scrap or refined pig-iron is partly melted or welded together by means of a charcoal fire and a blast. (Raymond)

Sinking fund. A fund created for the purpose of paying a debt when the debt falls due. (E. B. Skinner, p. 142)

Sinking head. Same as Deadhead, 1.

Sinking-lift. A lift (pump) of small size with especially heavy castings to resist the force of blasting: used in shaft-sinking (Standard). A sinking pump, which is also sometimes called Sinker.

Sinking pit (Eng.). A shaft in course of being sunk. (Gresley)

Sinking pump. A movable pump, usually vertical, hung in a shaft, and lowered, as the shaft is deepened (Weed). Also called Sinker.

Sinkman (Scot.). Same as Sinker, 1.

Sinks (Lanc.). Natural cavities found in iron mines. *See* Sink. (Gresley)

Sinople. 1. A ferruginous clay from which the pigment sinopia is prepared. Called also Sinoper; Sinopite. 2. A ferruginous quartz from Hungary. Also spelled Sinopal. (Standard)

Sinter. 1. A chemical sediment deposited by a mineral spring, either hot or cold. Siliceous sinter, consisting of silica, is also called Geyserite and Fiorite; calcareous sinter, consisting of calcium carbonate, is also called Tufa, Travertine, and Onyx marble. (La Forge)
2. Dross of iron; cinder. 3. To become or cause to become a coherent solid mass by heating without thoroughly melting. (Webster)

Sintering man. One in charge of a plant for sintering flue dust, or simply an employee at such places. (Willcox)

Siphon. A pipe bent in the form of U or ∩ acting on the principle of the hydrostatic balance so that the pressure of water in one leg always tends to equalize that in the other.

Siphonage. The action or operation of a siphon. (Century)

Siphon separator. An apparatus for the sizing of pulverized ores in an upward current of water. (Webster)

Siphon-tap. *See* Arends' tap.

Sipylite. A columbate of erbium chiefly, also of the cerium metals and other metals. (U. S. Geol. Surv.)

Sirdar (India). A native chief; a high military officer (Webster). As used in Indian mining literature, a foreman. Also Sardar.

Sit (Eng.). To settle or subside without breaking, as a mass of coal after undercutting and removal of the props. (Standard)

Size. 1. (Eng.) The extent of the displacement or the throw of a fault. (Gresley)
2. In brickmaking, plasticity, as of tempered clay. (Standard)
3. To separate minerals according to various screen meshes.

Skail (Scot.). A quantity of air allowed to take a short cut to rejoin the main current; air finding its way into the return air course by other than the designed way (Barrowman). *See* Scale, 3.

Skailing the air. (Scot.) Brushing out the foul air by means of diverting a current of fresh air into the gaseous workings. (Ure)

Skedophyre. A porphyritic rock in which the phenocrysts are distributed more or less uniformly through the groundmass. (Iddings, Igneous Rocks, p. 224)

Skeel (Som.). A kind of bucket or tub in which coal is lowered down the cuts or staples. (Gresley)

Skeleton crystals. Hollow or imperfectly developed crystals formed by rapid crystallization. (A. F. Rogers)

Skep. 1. (Corn.) An iron box working between guides, in which ore or rock is hoisted. It is distinguished from a kibble, which hangs free in the shaft (Raymond). A skip.
2. (Eng.). A bucket or tub at a mine out of which a horse drinks. (Gresley)

Skerries (War.). Greenish-white micaceous sandstone. (Gresley)

Skerry (Prov. Eng.). A loose, irregular piece of rock; rubble. (Standard)

Skerrystone (Mid.). Hard, thin bedded sandstone. (Gresley)

Skew. An irregular discontinuous vein striking out from the principal vein in an uncertain direction, lying in a slanting and irregular position. (Power)

Skew arch. An arch whose jambs are not at right angles with the face. (Webster)

Skewback. The beveled stone, iron plate, or course of masonry that supports the spring or foot of a segmented arch. (Standard)

Skew plate. *See* Bloomery.

Skid. 1. A shoe or clog, as of iron, attached to a chain, and placed under a wheel to prevent its turning when descending a steep hill; a drag. 2. A brake for a crane. 3. A timber, bar, or rail used in pairs or sets to form a slideway or rollway, as for an incline from a truck to the ground. (Webster)
4. An arrangement upon which certain coal-cutting machines travel along the working faces. (Gresley)

Skidoo bell (Mo.). A bell placed near the bottom of a shaft to warn men of any impending danger, as of falling material, descending cage, fire, etc.

Skiffle (Scot.). A sled or small hutch (Barrowman). *See* Slype.

Skiffling. The knocking off or knobbing of the corners of building-stone in the first dressing. (Standard)

Skimmer. 1. A device on tap-hole trough next to the furnace by which slag is automatically removed or skimmed from top of iron at cast, and diverted to ladles or pit. (Willcox)
2. An iron bar for holding back the slag in pouring molten metal. (Standard)

Skimming gate. A channel in a sand-mold having over it a bridge that removes the dross from molten metal as it passes through (Standard). *See* Skimmer.

Skimming ladle. Any ladle used in skimming; specifically, a ladle used for pouring molten metal, having its lip covered with a guard to retain the dross. (Standard)

Skimmings; Skimpings (Corn.). The poorest part skimmed off the ore in a jig. (Raymond)

Skimping. Same as Jigging. *See also* Skimmings.

Skin friction. Friction between a fluid and the surface of a solid moving through it. (Webster)

Skin to skin. As close as practicable. Timbers set up so close as to be touching each other are said to be skin to skin; *e. g.*, placing timbers on each other, as laying a wall with rock or brick.

Skip. 1. A large hoisting bucket, constructed of boiler plate, which slides between guides in a shaft, the bail usually connecting at or near the bottom of the bucket so that it may be automatically dumped at the surface. 2. An open iron vehicle or car on four wheels, running on rails and used specially on inclines or in inclined shafts. Sometimes spelled Skep.
3. A thin slice taken off a breast, pillar or rib along its entire length or part of its length. Called Slab in Arkansas. (Steel)

Skipping the pillar. To take a slice off the pillar before abandoning the workings; to rob (Chance). Also widening the gangway or entry.

Skip pit. The depression into which the skip descends when at the bottom of the skip incline to bring its top below the discharge chute of the scale car or bin. (Willcox)

Skip road, or way. A track of T-rails, spiked to wooden sleepers, on which a skip runs. (Weed)

Skips (Wales). Skirtings for widening out a coal road (Redmayne). *See* Skip, 2; *also* Skirting.

Skip-shaft. A (mine) shaft especially prepared for hauling a skip. (Standard)

Skirting. A road opened up or driven next to a fall of stone or an old fallen place. (Steel)

Skit. A Cornish term for a pump. (Skinner)

Skrin; Scrin (Derb.). Cross fissures in limestone, sometimes containing small quantities of ore. (Power)

Skull. 1. A crust of solidified steel lining a Bessemer ladle. (Raymond)
2. Solidified iron, graphite, and cinder in ladles at blast furnaces. (Willcox)

Skull cracker. *See* Skull drop.

Skull drop; Skull cracker. A place where heavy ladle skulls are broken. (Willcox)

Skutterudite. An arsenide of cobalt, of gray color and brilliant metallic luster. (Chester)

Slab. 1. A split piece of timber from 2 to 3 inches thick, 4 to 6 feet long, and 7 to 14 inches wide, placed behind sets or frames of timber in shafts or levels. 2. Pieces of wood

sawed off the sides of a log. 3. A skip or slice taken off the rib of an entry or room. (Steel)
4. Cleaved or finely parallel jointed rocks, which split into tabular plates from 1 to 4 inches thick. Slabs are seldom so strong as flags. Also called Slabstone. (Power)
5. A mass of tin run into a stone mold. (Standard)

Slabbing. 1. Close timbering between sets of timber. (Duryee)
2. Lagging placed over bars. Also called Slabs. (Gresley)
3. Cutting a slice or slab from the side of a pillar. *See* Slab, 3.

Slab entry. An entry which is widened or *slabbed* to provide a working place for a second miner. (Steel)

Slabstone. A rock that readily splits into flags or slabs; flagstone. (Standard)

Slack. 1. Small coal; coal dirt. *See* Culm, 2. (Raymond)
2. The process by which soft coal disintegrates when exposed to the air and weather (Steel). Also to slake, as lime.

Slack box (Aust.). A bin in which fine coal (Slack, 1) is stored. (Power)

Slacken. In metal smelting, the scoria of previous operations, mixed with the ores to retard or prevent fusion of the nonmetallic portions. Also spelled Slakin. (Standard)

Slack wax. A name for a mixture of paraffin wax and oil. (Bacon)

Slade (Ir.). A long spade with an L-shaped blade for digging peat. (Standard)

Slag. 1. The vitreous mass separated from the fused metals in smelting ores. (Raymond)
2. To form a slag, or to cohere when heated so as to become a slag-like mass. (Century)
3. Volcanic scoria. (Standard)

Slag brick. Brick made of furnace slag.

Slag buggy (Local, U. S.). A very large pot for holding slag obtained in the smelting of ores. It is mounted on a railway truck or the like so as to permit easy dumping. (Standard)

Slag car. A two- (or four-) wheeled iron car used to carry slag from a furnace to a dumping place (Century). A slag buggy.

Slag cement. A hydraulic cement made by grinding granulated blast-furnace slag with slaked lime. (Webster)

Slag dump. A dumping place for molten slag, or for shells, or cones that form in a slag pot. (Standard)

Slag furnace. A furnace designed for extracting lead from slags.

Slaggable. Capable of becoming, or forming into, a slag.

Slaggy. 1. Pertaining to, containing, or of the nature of slag; as, a *slaggy* substance. 2. Of slaggy structure; said of rocks composed of intermingled roughly cellular and compact portions, like slag from an iron furnace. (Standard)

Slag hearth. A hearth, on the principle of the Scotch hearth, for the treatment of slags, etc., produced by lead smelting in the reverberatory furnace. The English slag hearth has one tuyère; the Castilian or Spanish three. (Raymond)

Slag-lead. Lead obtained by a re-smelting of gray slag. (Raymond)

Slag notch. *See* Cinder tap.

Slag pot. A vessel for the disposal of slag at furnaces. Small pots are mounted on wheels and handled by hand, while the larger ones are mounted on trucks for mechanical transportation. (Hofman, p. 258) *See* Slag buggy; Slag car.

Slag shingle. Broken slag used in road-building. (Standard)

Slag wool. A finely fibrous mass produced by blowing steam or air into molten slag (Raymond). Same as Mineral wool.

Slake. 1. To become slack or loose.
2. To become mixed with water, so that a true chemical combination takes place, as in the slaking of lime. (Webster)
3. (Scot.) A glutinous silt adhering to the sides of deep boreholes especially in passing through fine sandstone. (Barrowman)

Slake trough. A blacksmith's water tank for cooling forgings or tools. (Webster)

Slakin. *See* Slacken.

Slant. 1. Any short inclined crosscut connecting the entry with its air course to facilitate the hauling of coal. Commonly called a Dip-switch when the coal is not level. Also

called Shoo-fly. (Steel) 2. A heading driven diagonally between the dip and the strike of a coal seam; also called a Run. *See* Counter, 2. (Raymond)

Slant chutes. Chutes driven diagonally across to connect a breast manway with a manway chute. (Chance) *See* Slant, 2.

Slap (Som.). Slack coal. (Gresley)

Slash (Eng.) A mass of coal crushed and shattered by a movement of the earth's crust. (Century)

Slasher. In brickmaking, a wide sword-like implement for slicing masses of clay in search of stones and roots. (Standard)

Slat. 1. A thin piece of slate, as for roofing. 2. A flat piece of stone used in veneering masonry. Also spelled Slatt. 3. (Prov. Eng.) Dark-blue ooze, rather hard, left dry by the ebb of the sea. (Standard)

Slate. A dense, fine-textured metamorphic rock whose separate minerals are indistinguishable to the unaided eye, and which has an excellent parallel cleavage, so that it breaks into thin plates or pencil-like shapes (U. S. Geol. Surv.) *Compare* Shale.
A coal miner's term for *any* shale or slate accompanying coal; also sometimes applied to bony coal.

Slate cement. 1. A cement made with slate; a kind of hydraulic cement. 2. A mixture of broken slate and tar or asphalt, used as a roofing material. (Webster)

Slate chute. 1. A chute for the passage of slate and bony coal to the pocket from which it is loaded into dump cars. 2. A chute driven through slate. (Chance)

Slate clay. 1. Shale. 2. A fire clay occurring among coal beds. (Standard)

Slate coal. 1. (Eng.) A hard, dull variety of coal. (Gresley)
2. Coal that has pieces of slate of greater or less size attached to it, which can be separated by breaking the coal into smaller pieces and subjecting the coal to a washing process. (Power)

Slate fault. A local replacement of a coal seam by slate; a simple thickening of a regular slate parting is also often designated by the same term, or is called a "horse." (Chance)

Slate picker. 1. A man or boy who picks the slate and bony coal from the coal. 2. A segment of a cylindrical screen provided with narrow slits, through which the flat pieces of slate fall, but through which the coal (not being flat) can not pass. (Chance)

Slate spar. A variety of crystallized calcite. Called also Shiver spar. (Standard)

Slat gate. A gate, for controlling water, composed of two upright grooved posts with boards between, the boards or slats being removed or added to regulate the height of water. (Clennell, p. 177)

Slaty. Characteristic of, pertaining to, resembling, or consisting of slate; having the characteristic cleavage and texture of slate. (La Forge)

Slaty cleavage. A tendency to split into thin, smooth, even plates, like slate, the more typical if the planes of cleavage are transverse to the bedding-planes. (Standard)

Slawm (Derb.). A rock joint filled with moist clay (Hooson). Also Slaum, Sloam, Sloom.

Slazburg vitriol. A mixture of copper sulphate and ferrous sulphate crystallized together about in the proportion of 1:3. (Webster)

Sleck. 1. (Newc.) Mud deposited by water in a mine. (Raymond)
2. (Eng.) A kind of reddish sandstone. (Webster)

Sled. A drag used to convey coal along the road to where it is loaded into cars, or to the chute (C. and M. M. P.). Also called Sledge; Slype.

Sleek. 1. Having an even, smooth surface; slick. (Webster)
2. (Brist.) Soft and troublesome, as applied to the condition of the floor in steep seams. (Gresley)

Sleeping rent. A fixed rent stated in leases of coal mines, as distinguished from royalty or share of profits. (Standard)

Sleeping-table (Corn.). A stationary buddle. For the strict distinction sometimes made between buddle and table, *see* Buddle. (Raymond)

Sleeve. A piece of pipe or thimble for covering a joint, or for coupling two lengths of piping. (Webster)

Slew (Derb.). A basin or swamp; a wet marshy place. *See* Lum, 2. (Gresley)

Slice. 1. A thin, broad piece cut off, as a portion of ore cut from a pillar or face. 2. To remove ore by successive slices. 3. A gem-slitting mill. (Standard)

Slice bar. A thin, wide iron tool for cleaning clinkers from the grate-bars of a furnace. (Standard)

Slicer. A lapidary's slitting mill. (Standard)

Slicker. A small implement used in a foundry for smoothing the surface of a mold. (Standard)

Slicing and filling system. *See* Overhand stoping.

Slicing machine. An upright pug mill, with radial blades, for slicing clay in the manufacture of pottery. (Standard)

Slicing under mats of timber in panels. *See* Top slicing and cover caving.

Slicing under ore with back caving in rooms. *See* Top slicing combined with ore caving.

Slick. Ore in a state of fine subdivision; synonymous with Slimes (Duryee). Also called Slickens.

Slickens (Cal.). A word sometimes used to designate the débris, or tailings, discharged from the hydraulic mines or from stamp mills. (Hanks)

Slickenside. A polished and sometimes striated surface on the walls of a vein, or on interior joints of the vein material or of rock masses. (Raymond) Produced by rubbing during faulting, on the sides of fissures or on bedding-planes. (La Forge) Also called Slicks.

Slicking. A narrow vein of ore. (Standard)

Slicks (Eng.). Smooth partings or mere planes of division in strata (Gresley). Slickensides.

Slide. 1. (Corn.) A vein of clay intersecting and dislocating a vein vertically; or the vertical dislocation itself. 2. An upright rail fixed in a shaft with corresponding grooves for steadying the cages. *See* Guide. (Raymond)
3. The descent of a mass of earth or rock down a hill or mountain side. 4. The track of bare rock left by a landslide. (Webster)
5. An accumulation of loose gravel and detached bowlders washed down from the mountains. (Colo. Central, etc., Mining Co. *v.* Turck, 50 Fed. Rept., p. 890)
6. A small dislocation in a rock mass. (Standard)

Slide joint. A connection acting in rod-boring like the jars in rope-boring. (Raymond)

Slide rule. An instrument, consisting in its simple form of a ruler with a medial slide, ruler and slide being graduated with logarithmic scales which are labeled with the corresponding antilogarithms. The graphic addition upon the slide and rule of two divisions of the scale, gives the product their antilogarithms. (Webster)

Sliding scale. 1. A mode of regulating the wages paid working men by taking, as a basis for calculation, the market price of coal (or other product). The wages rise and fall with the condition of trade, or markets. 2. (Ark.) A method of paying for the coal in proportion to the amount of lump coal it contains. (Steel)

Sliding suction (Scot.). A suction pipe capable of being lengthened by telescopic arrangement. (Barrowman)

Sliding the rail. Said of a driver when he places one foot on the rail in front of the car, and the other foot on the bumper, and with his right hand holds on to the car and allows his foot to slide on the rail. (Marquette Third Vein Coal Co. *v.* Allison, 132 Illinois App., p. 232)

Sliding windbore (Eng.). The bottom pipe or suction-piece of pumps used in shaft sinking, having a lining made to slide or telescope within it, to give length without altering the adjustment of the whole column of pumps (Gresley). Also called Sliding suction.

Slig; Sliggeen (Ir.). Shale. (Power)

Slime. A product of wet crushing containing valuable ore in particles so fine as to be carried in suspension by water; chiefly used in the plural (Webster) In metallurgy, ore reduced to a very fine powder and held in suspension in water so as to form a kind of thin ore-mud; generally used in the plural. (Century)

Slime-box. *See* Slime-pit.

Slime-pit. A tank or large reservoir of any kind into which the slimes are conducted in order that they may have time to settle, or in which they may be reserved for subsequent treatment. *See* Slime. (Century)

Slimer. A machine that makes slime; for example, a tube mill. (Rickard)

Slime sludge. 1. The pulp or fine mud from a drill hole. 2. *See* Slime.

Slime table. A table for the treatment of slime. A buddle.

Slime washer. A vanner, concentrator, or similar machine, used in the separation of ores. (Standard)

Slime water. Water defiled in washing ore. (Standard)

Sline. 1. Natural transverse cleavage of rock (Raymond). A joint.
2. (Mid.). Pot holes in a mine roof. (Gresley)

Sline back. A joint or crevice that bounds a block of rock in the roof, as the upper surface of a pot hole or kettle bottom.

Sling. 1. In ceramics, a piece of wire with a handle at each end for cutting clay. 2. To cut clay with a sling. (Webster)
3. A rope or chain put around stones or heavy weights for raising them. C. and M. M. P.)

Sling cart. A kind of cart to transport large stones, machines, etc., the load being suspended by chains attached to the axle. (Webster)

Sling chain (Scot.). A chain by which pump pipes are suspended. (Barrowman)

Sling psychrometer. An instrument consisting of a pair of thermometers, provided with a handle, which permits the thermometers to be whirled rapidly, the bulbs being thereby strongly affected by the temperature of and moisture in the air. The bulb of the lower of the two thermometers is covered with thin muslin, which is wet at the time an observation is made. Used for determining humidity of the air. (Liddell)

Slink (Scot.). A wide clayey joint; a stage. (Barrowman)

Slip. 1. A fault. 2. A smooth joint or crack where the strata have moved upon each other. 3. (Ark.) A joint in the coal upon which there may have been no preceptible movement. (Steel)
4. The relative displacement of formerly adjacent points on opposite sides of the fault, measured in the fault surface. *See* Dip slip and Strike slip. (Lindgren, p. 119)
5. A sudden descent of a hanging or sticking charge in a blast furnace. (Willcox)
6. Potter's clay in a very liquid state used for the decoration of ceramic ware, or as a cement for handles or other applied parts. To convert into slip. (Webster)
7. Same as a horseback, kettleback, or kettlebottom. (Davis *v.* Nuttallsburg Coal & Coke Co., 34 West Virginia, p. 502; Cons. Coal Co. *v.* Scheller, 42 Illinois App., p. 621)

Slip clay. An easily fusible clay, sometimes used to make a natural glaze on the surface of clay wares. (Ries)

Slip cleavage. 1. Microscopic folding and fracture accompanied by slippage; quarrymen's "false cleavage." (Ries)
2. (So. Wales). The cleat of the coal in planes parallel with slips or faults. (Gresley)

Slip-decoration. Decoration on ceramic ware made by applying slip or barbotine with a small pipe. (Standard)

Slip-dike (Scot.). A whin dike accompanied by a dislocation of the strata; a fault. (Barrowman)

Slipes (So. Staff.). Sledge-runners, upon which a skip is dragged from the working breast to the tramway. (Raymond)

Slip-glaze. 1. A pottery glaze composed of a fine clay or similar mineral powder: applied mixed with water. (Standard)
2. A glaze produced with slip-clay, *which see.* (Ries)

Slip-hook. A hook, generally on a hinge, which can be readily disconnected by withdrawing a cotter bolt that holds it in position. (Power)

Slip-kiln. A kiln consisting of a series of pans for drying potters' slip. (Standard)

Slippy (Eng.). Abounding in cracks or joints; said of rocks in the Midland coal field. (Standard)

Slippy backs (No. of Eng.). Vertical planes of cleavage occurring every four or five inches in the seam of coal. Also called Slip things. (Gresley)

Slip-spear. A tool for extracting tubing from a bore-hole. (Gresley)

Slip-strainer. A strainer through which potter's slip is passed. (Century)

Slip-things (So. Staff.). The more or less vertical planes of cleavage in coal. *See* Slippy backs. (Gresley)

Slip-trouble (Scot.). Difficulties encountered in mining due to slips. *See* Slip, 1.

Slip-vein. A mineral vein accompanied by faulting or dislocation. (Skinner)

Slit. A communication between two levels. (Raymond)

Slitter (Eng.). A pick. (Gresley)

Slitting-disc. A gem-cutter's slitting-mill.

Slitting-mill. A rotating disc used by gem-cutters in slitting; a slicer. (Standard)

Sliver (Eng.). A thin wooden strip, inserted into grooves in the adjacent edges of two boards of a brattice, to make it air-tight. (Raymond)

Sloam. A layer of clay between seams of coal (Standard). Also Sloom.

Slob (Eng.). Mud; a marsh or mire. (Century)

Slocking stone (Eng.). A piece of rich ore used to tempt persons into a mining enterprise (Webster). *See* Salting a mine.

Sloom (Mid.). A soft, earthy, clay or shale often underlying a bed of coal (Gresley). Also Sloam; Slawn.

Slop. In ceramics, to blend thoroughly, as clay, by kneading, or cutting and piling. (Standard)

Slop brick. A name sometimes applied to soft-mud brick. (Ries)

Slope. An inclined passage driven from the dip of a coal vein. *Compare* Slant, 2. When not open at one end to the surface, it is known as an *inside slope. See also* Incline; Plane. *Rock slope:* A slope driven through rock strata. *Slope air-course:* A passageway parallel to the haulage slope used for the passage of the air current. (Steel)

Slope cage; Slope carriage. A truck on which the cars are raised at slopes or steep dips. (Chance)

Slope dook (Scot.). An incline driven not direct to the dip, *i. e.*, intermediate between the dip and strike. (Barrowman). *Compare* Slant, 2.

Slope heading (Scot.). A heading driven not direct to the rise (Barrowman). The opposite of Slope dook.

Slope mine. A mine opened by a slope or incline.

Slope road (Scot.). A road driven at an angle less than a right angle with level course. *See* Slope dook. (Barrowman)

Sloping pump (Scot.). A hand pump laid on the slope of the strata to drain dip workings. (Barrowman)

Slop-molding. A method of molding bricks in open-topped boxes or molds previously dipped in water to keep the clay from sticking to them; distinguished from Pallet-molding. (Standard)

Slop oil. Any liquid product of petroleum which is not up to quality. Slop oils are usually put aside for redistillation. (Bacon)

Slopping. In ceramics, a process of kneading clay to render it homogeneous. (Standard)

Slot (York.). To hole (Gresley). To undercut or channel.

Slottere (Corn.). Dirty; muddy; slovenly. (Pryce)

Slotting (York.). Coal cut away in the process of holing. Often used in the plural (Gresley). Sometimes called Bug-dust in the United States.

Slovan (Corn.). **1.** The outcrop or back of a lode. This generally applies to the appearance of a lode in a marshy place. N. B.—*cropping out* is a Welsh, also East and North of England, term; but is never used in Cornwall. (Hunt)
2. A gallery in a mine; day level: especially applied to damp places. (Standard)

Sludge. **1.** A term applied to the tar from the agitators in the chemical treatment of distillates. **2.** Soft mud; muddy sediment in steam boilers; slime resulting from ore dressing. (Webster)
3. The fine mixture of water and bore meal produced by the action of a drill in a rock. **4.** Refuse from a

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coal-washing plant. **5.** A device for pumping sludge from a bore hole; a sand pump or shell pump. (Standard)
6. Sometimes synonymous with Slime.

Sludge acid. Impure and dark-colored sulphuric acid that has been used in refining petroleum. (Webster)

Sludge channel. A tail race for conveying the tailings away after the gold has been extracted from alluvial beds. (Duryee)

Sludge door. An opening through which sediment may be moved. (Century)

Sludge mill. A machine in which the sludge (slime) from another mill is washed (Duryee). As, for example, a Slime table.

Sludge pump. A short iron pipe or tube fitted with a valve at the lower end, with which the sludge is extracted from a bore-hole. (Gresley)

Sludger. A cylinder having an upward-opening valve at the bottom, to pump out the sludge or fine rock resulting from drilling (Ihlseng). A Sand pump; a Sludge pump.

Slue. To turn or twist about. To slip or slide out of course (Webster). In cutting the coal the machine moves from right to left, the back part moving faster than the front. It is necessary at intervals to stop the machine and straighten it, or "slue" it, as called by miners. (Consolidation Coal Co. *v.* Bailey, 198 S. W. Rept., p. 562)

Slug. 1. A lump of metal or valuable mineral, *e. g.*, Cassiterite or Cerargyrite. (Power)
2. A mass of half-roasted ore. (Webster)
3. (Eng.) A loop formed at the end of a rope through which a miner passes his leg previously to descending an old shaft or working. (Hunt)

Slugga. (Irish) A hole in the surface rock of some limestone formations, caused by the falling in of parts of the crust over subterranean streams (Standard). *Compare* Sink; Sinkhole.

Slugger. A projection on the face of a crushing roll. (Richards, p. 105)

Sluice. 1. A long, inclined trough, launder, or flume, usually on the ground, for washing auriferous earth, floating down logs, etc. In gold mining such a contrivance is paved with riffles, etc., to hold the quicksilver for catching the gold. **2.** To wash with or in a stream of water running through a sluice. **3.** To scour out, as a channel, by means of a flood of water. (Webster)

Sluice box. A wooden trough in which alluvial beds are washed for the recovery of gold or tinstone. (Cox)

Sluice fork. A form of fork having many tines, used to remove obstructions from a sluiceway. (Century)

Sluice gate. The sliding gate of a sluice. (Webster)

Sluice head (Aust.). A supply of 1 cubic foot of water per second, regardless of the head, pressure, or size of orifice (C. and M. M. P.). *Compare* Miner's inch.

Sluice valve. A sluice gate. (Webster)

Sluiceway. An artificial channel into which water is let by a sluice. (Webster)

Sluicing. Washing auriferous earth through long races or boxes, provided with rifles and other gold saving appliances, and so-called sluices. (Hanks)

Sluicing table (New Zealand). A table, on wheels, used for washing black sand for its gold content. (Duryee)

Slum; Slums. 1. (No. Staff.) A black slippery, indurated clay. **2.** A soft clayey or shaley bed of coal (Gresley). Also spelled Slumb.
3. Used in the plural for the discharge or waste from hydraulic mines. *See* Tailing, and Slime. (Hanks)

Slumgullion. A muddy, usually red, deposit in the sluices. (Webster)

Slurry. 1. A thin watery mud, or any substance resembling it. **2.** A thin cement or mortar used to repair furnace linings. **3.** A watery mixture of the powdered raw materials of hydraulic cement. **4.** A wash used by molders. (Webster)
5. (Eng.) A mixture of sulphides and arsenides of copper, lead, and silver, etc., resulting from silver-smelting. (Standard)

Slush. 1. To fill in with mortar, cement, or the like, as the joints of a wall. (Webster)
2. To fill mine workings with sand, culm, etc., by hydraulic methods. *See* Hydraulic mine-filling.

Slushing. A synonym for Hydraulic mine-filling. (U. S. Bu. Mines, bull. 60)

Slyne. *See* Sline.

Slype (Scot.). A sled for drawing coal along the wall face, or in steep workings (Barrowman). Also called Sawney.

Small (Eng.). A term frequently used for slack or fine coal. (Gresley)

Small bottom. A local term used at Jenny Lind, Arkansas, for the smaller part of the bottom bench of the coal seam. This is below the *top bottom* and separated from it by a smooth seam. (Steel)

Small butty (Staff.). A contractor who engages to work a certain part of a seam—usually reckoned as a certain width of face—at a tonnage price, the contractor finding and paying the labor necessary to mine and deliver the coal to the haulage road. (Redmayne)

Small coal. 1. Coal broken into small pieces, usually that smaller than stove size; slack. (Standard)
2. Thin seams of coal; also called Low coal.

Small ore (Eng.). Copper, lead and zinc ore dressed to a small size (Hunt). Also called Smalls.

Smalls. 1. Small coal; slack. 2. Small particles of mixed ore and gangue (Standard). *See* Small ore.

Small tin (Eng.). Tin recovered from slimes. (Hunt)

Smalt. A blue pigment or glass, consisting of silica, potash, and cobalt. (Raymond)

Smaltine. An arsenide of cobalt, often containing nickel and iron. Also called Smaltite, Gray cobalt, Tin-white cobalt. (Century)

Smaltite. Cobalt diarsenide, $CoAs_2$. Contains, when pure, 28.2 per cent cobalt. Through replacement of the cobalt by nickel it grades into chloanthite, the nickel arsenide, $NiAs_2$. (U. S. Geol. Surv.)

Smaragd. A precious stone of light green color; a variety of beryl. (Dana)

Smaragdite. A thin-foliated variety of amphibole, near actinolite in composition but carrying some alumina. It has a light green color, resembling much common green diallage. (Dana)

Smart fire (No. of Eng.). A severe, though small, mine explosion. (Gresley)

Smart money (No. of Eng.). A weekly allowance of money given by employers to workmen who are injured while at work (Gresley). Accident compensation.

Smear. 1. A volatile flux for glazing ware. 2. To give a luster to (articles of pottery) without glazing, as by putting a volatile flux in the kiln with the ware (Standard). Also spelled Smeir.

Smectite. 1. A green clay. (Standard)
2. A greenish variety of halloysite. In certain states of humidity appears transparent and almost gelatinous. (Dana)

Smeddum. 1. (Scot.). The smaller particles of ore which pass through the sieve of the hutch. (Raymond)
2. (Eng.). Clay or shale separating coal seams. (Webster)
3. Fine coal-slack. (Standard)
Also spelled, Smiddam, Smiddum, Smitham, Smithem, Smitten and Smytham.

Smeir. A semiglaze used on pottery; a mixture of common salt and slip glaze. *See also* Smear.

Smelt. 1. To reduce metals from their ores by a process that includes fusion. In its restricted sense *smelting* is confined to a single operation, as the fusion of an iron ore in a shaft furnace, the reduction of a copper matte in a reverberatory furnace, and the extraction of a metal from sweepings in a crucible; but in its general sense it includes the entire treatment of the material from the crude ore to the finished metal, and embraces: (a) the calcination or roasting, by means of which the sulphur and other volatile constituents are expelled; (b) The reduction of the resulting furnace products, or the smelting proper, and (c) the refining of the product from the second operation. 2. To melt or fuse as a metal. (Standard)

Smelter. 1. One who is engaged in smelting or who works in an establishment where ores are smelted. 2. In the United States, smelting works; an establishment where ores are smelted (Century). Also, more correctly called Smeltery.

Smeltered (Calif.). A term applied to animals that have been injured by smelter fumes, either by inhalation or by eating vegetation upon which smelter fumes have settled. (U. S. Bu. Mines, bull. 98, p. 54)

Smelters' ton. A long ton plus an allowance for sandage, etc. (Standard)

Smeltery. A smelting establishment (Webster). Better usage than smelter.. 2.

Smelting furnace. A blast furnace, reverberatory furnace, or other furnace in which ore is smelted for the separation of a metal. (Standard)

Smelting house. A structure built over a smelting-furnace; a smelting works (Standard). A smeltery.

Smelting works. An establishment in which metals are extracted from ores by furnaces. (Standard) A smeltery.

Smiddam; Smitham (Derb.). Lead-ore dust (Raymond). A variation of Smeddum, 1.

Smiddum (Eng.). A variation of Smeddum. (Webster)

Smiddum tails (No. Eng. and Scot.). Ore sludge; ore slime (Standard). A variation of Smeddum.

Smiddy coal (Scot.). Smithy coal. (Barrowman)

Smift (Eng.). A fuse or slow match. (Raymond)

Smitham; Smithem; Smytham. 1. (Mid.) Fine slack. 2. Clay or shale between two beds of coal (Gresley) A variation of Smeddum, 2 and 3.

Smithery. 1. The art of shaping or fashioning, as iron or steel, with a hammer and other tools; smithing. 2. A smith's shop; smithy. (Standard)

Smith process. A variation of the series system of copper refining in which the plates are placed horizontally, the top surface of each one acting as cathode, the lower as anode. Linen diaphragms must be placed between the plates to catch the slime. When these diaphragms break and allow the slime to drop on the cathode, it is difficult to remedy any short circuits without dismantling the tank. (Liddell)

Smithsonite. Carbonate of zinc, $ZnCO_3$. (Contains 52 per cent zinc. (U. S. Geol. Surv.)

Smithy coal (Eng.). A grade of small coal habitually used by blacksmiths. (Century)

Smithy ore (No. of Eng.). A soft variety of hematite, much used for forming bottoms of puddling furnaces. (Power)

Smitten. Fine gravel-like ore, occurring free in mud openings, or derived from the breaking of the ore in blasting (C. and M. M. P.). A variation of Smeddum, 1.

Smoke. The exhalation, visible vapor, or material that escapes or is expelled from a burning substance during combustion; applied especially to the volatile matter expelled from wood, coal, peat, etc., together with the solid matter which is carried off in suspension with it. That which is expelled from metallic substances is generally called Fume or Fumes (Century). *See* Fume, 2; *also* Metallurgical smoke.

Smokeless gunpowder. A gunpowder making very little smoke when exploded (Standard). *See* Smokeless powder.

Smokeless powder. An explosive consisting mainly of nitrocellulose in a more or less completely gelatinized condition. Sporting powders usually contain besides nitrocellulose, considerable foreign substances, as barium nitrate, ammonium bichromate, etc., which facilitates the combustion without increasing too much the gas pressure in the firearm. (Brunswig, p. 242)

Smoke room. 1. (Ark.) An entry aircourse driven room width. (Steel) 2. A room specially constructed in which noxious gases may be generated and confined for the purpose of testing breathing apparatus.

Smoke-shade. A scale of tints, ranging from 0 to 10, used for comparison of the smoke of different varieties of coal, which are graded according to the amount of unconsumed carbon contained in their smoke, the lightest color indicating the most complete combustion. (Standard)

Smokestone. Smoky quartz. (Webster)

Smoke washer. A device in which smoke is exhausted upwards against a downward spray of water to remove the solid particles in the smoke. (Webster)

Smoke zone. The area surrounding a smelting plant in which the smoke or fumes damage vegetation, or in which it may be classed as a public menace or nuisance. (Bu. Mines, Bull. 98, p. 28)

Smoky pit (Mid.). An upcast shaft with a furnace at the bottom of it. (Gresley)

Smoky quartz. A smoky, brown-colored crystalline variety of quartz. Cairngorm. (Power)

Smoky topaz. A smoky quartz used for jewelry. (Webster)

Smooth (Wales). 1. The line of face, as of a stall or room. 2. A plane of cleavage more or less vertical. (Gresley)

Smooth-head (York.). A smooth plane of cleavage. *See* Bright-head. (Gresley)

Smoothing mill. A lapidary's polishing wheel. (Standard)

Smored (Scot.). Obstructed with rubbish, mud, or silt, as the suction pipe of a pump. (Barrowman)

Smother kiln. A kiln in which the smoke is smothered to blacken the pottery within. (Standard)

Smudge coal. Coal partly deprived of its bitumen, and converted into a sort of natural coke. (Power)

Smut (So. Staff.). Bad, soft coal, containing much earthy matter. *See* Blossom. (Raymond)

Smuth, or Mucks (Eng.). Very inferior coal (Gresley). A variation of smut.

Smythe producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 313)

Snab (Scot.). The brow of a steep road; a short and steep part of an incline. (Barrowman)

Snake hole. A bore-hole driven horizontally or nearly so and approximately on a level with the quarry floor; also a bore-hole driven under a bowlder for containing a charge of explosives. In quarry work it is called a "lifter." (Du Pont)

Snakestone. A spotted whetstone from Ayr. *See* Ayr stone. (Power)

Snap. 1. (Mid.) Lunch. *See* Bait. 2. (Mid.) A haulage clip. (Gresley) Used in plural form. 3. (Eng.) A small, flat, pointed pick for chipping off brasses, stone, or slate from lump coal. (G. C. Greenwell)

Snapper. A car coupler; trip rider.

Snapping time (Mid.). A short period of rest during a shift in which a miner takes his lunch. (Gresley)

Snatch (Eng.). A small chimney used for ventilation. (Bainbridge)

Sneck. 1. (Scot.) An appliance for diverting wagons, or cars, from the main line into a siding. (Gresley) 2. A latch or catch of a door. 3. To lay rubble masonry with spalls and fragments to fill the interstices. (Webster)

Snecked rubble. Bonded rubble masonry. (Standard)

Snecking. In masonry, rubble-work. (Standard)

Snecky (Eng.). A wedge-shaped vertical cut at the end of a stall or room. (Gresley)

Snibble (Scot.). A sprag or drag for hutches, wagons, or cars. (Barrowman)

Snoff (Corn.). A short candle end, put under a fuse to light it (Raymond). A variation of Snuff.

Snore hole. The hole in the lower part or windbore of a mining pump, to admit the water. (Raymond)

Snore piece. The lowest end of a pump set through which the water passes (Gresley). An intake; a Suction pipe.

Snort valve. A butterfly valve opening from the cold-blast main of a blast furnace to the atmosphere. Allows casting at the furnace without shutting down the blowing engines. Operated by large wheel or lever in cast house. (Willcox)

Snowbird mine (or Shipper). A mine that produces or ships only small quantities of coal, and operates only when coal is high by reason of a scarcity or a shortage of cars for shipment. The coal is loaded from wagons or trucks into cars on sidings. No tipple is used. (Baltimore & Ohio R. R. Co. *v.* Public Service Commission (W. Va.), 94 S. E. Rept., p. 547)

Snowshed (Mo.) A shed or structure of heavy timber for the purpose of protecting the tub hookers and other workmen on the station floor (in a mine) from stone and débris falling from the cans while being hoisted. (Reidnour *v.* Wilcox Mines Co., 147, S. W. Rept., p. 852)

Snub. 1. To increase the height of an undercut by means of explosives or otherwise. 2. To check the descent of a car, by a turn of a rope around a post. (C. and M. M. P.)

Snubbing. 1. (N. Y. and Pa.) A term applied by bluestone quarrymen to the process of forcing a cross break in the absence of an open seam. (Bowles)
2. Increasing the height of an undercut by picking or blasting down the coal, just above the undercut.

Soak (Aust.). A natural receptacle for conserving water drained off rocky mounds. (Power)

Soaking pit. A chamber lined with refractory nonconducting material, in which white-hot steel ingots are placed and kept until the proper temperature for rolling is reached. (Standard)

Soak pit. A pit in which wet clay is allowed to soak preparatory to molding. (Ries)

Soams (No. of Eng.). A pair of cords about 3 feet in length, by which boys pull tubs along the roads (Gresley). A draft rope or chain.

Soapy heads (Eng.). The joints of stones, which are filled with a saponaceous or talc-like mineral. (Pryce)

Soap-rock. A synonym for Soapstone. (Chester)

Soapstone. 1. A metamorphic rock of massive, schistose, or interlocking fibrous texture and soft unctuous feel, composed essentially of steatite or talc, which is regarded as secondary after some ferro-magnesian mineral. 2. As used loosely by miners, well drillers, and others, any soft unctuous rock, such as micaceous shale or sericitic schist. (La Forge)

Sobarbo (Sp.). 1. A cam. 2. A tappet of a stamp mill. (Halse)

Sobrante (Sp.). Residue, overplus, surplus, profit. (Hanks)

Sobresabana (Colom.). Ore lying higher than the *sabana*. (Halse)

Sobrestante (Mex.). Overseer, foreman, or shift boss. (Halse)

Socabón (Sp.). An adit. *See* **Socavón.** (Halse)

Socavado (Sp.). An undercut, as in coal mining. (Halse)

Socavadora (Sp.). A coal cutter; a coal-cutting machine. (Halse)

Socavadura (Sp.). Undercutting, as in coal mining. (Halse)

Socavón (Mex.). 1. A mining tunnel. An adit level; *S. á hilo de veta*, a drift; *S. crucero*, a cross cut. (Dwight)
2. In Mexico, any gallery, the mouth of which is at the surface.
3. *Socavones*, large holes, pits, or shafts. (Halse)

Sociedad (Sp.). Society, corporation, company, partnership; *S. anónima*, a joint stock company; a limited liability company; *S. incorporada*, a chartered company. (Halse)

Socket. 1. A device fastened to the end of a rope by means of which the rope may be attached to its load; the socket may be opened and closed. (C. M. P.)
2. (Eng.) The innermost end of a shot hole not blown away after firing. (Gresley)
3. A hollow tool for grasping and lifting tools that have been dropped in a well-boring. (Standard)

Socketing. Same as Springing, 2, which *see*. Du Pont)

Soda. The normal carbonate of sodium, Na_2CO_3; soda ash: the latter being the common name of the commercial article used in chemical industries.

Soda-alum. An alum of aluminum and sodium, sometimes found native as mendozite. (Standard)

Soda-ash. Commercial anhydrous sodium carbonate. Used extensively in manufacturing trades; also as a flux, etc.

Soda-ball. Same as Black ash. (Standard)

Soda feldspar. *See* Albite.

Soda granite. *See* Natron-granite.

Sodalite. A silicate of sodium and aluminum with some chlorine. $Na_4(AlCl)Al_2(SiO_4)_3$. (Dana)

Soda nitre. Sodium nitrate, $NaNO_3$. (Dana)

Soda-orthoclase. A variety of orthoclase containing more or less sodium; also called Natron-orthoclase. (La Forge)

Sodium. A soft, waxy, silver-white metallic element of the alkali group. Symbol, Na; atomic weight 23.00; specific gravity, 0.97. (Webster)

Sods (Leic.). Clay beneath coal seams. (Gresley)

Soffioni. An emanation, from the earth, of vapors which are principally boric acid; also, the opening from which the vapors issue. *See* Solfatara, Fumarole, and Mofette.

Sofocado (Mex.). Said of a mine which has been abandoned on account of being drowned out, or from other causes. (Halse)

Soft. 1. Tender; friable; or full of slips and joints. (Gresley)
2. Bituminous as opposed to anthracitic; said of coal. (Century)

Soft air (Scot.). A stagnant state of the ventilation. (Barrowman)

Soften. To heat ore so that the minerals are cracked and fissured, permitting of easier crushing. (Richards, p. 9)

Softening. Of lead, the removal of antimony and other impurities. (Raymond)

Soft ground. Heavy ground. Rock about underground openings that does not stand well and requires heavy timbering. (Weed)

Soft-mud process. A method of molding brick, by forcing clay into wooden molds. (Ries)

Soft ore (Lake Superior). A soft or incoherent hematite, as opposed to the hard specular variety.

Soft phosphate. A term used in Florida which is applied arbitrarily to anything phosphatic that is not distinctly *hard rock.* (Power)

Soft pitch. Pitch showing a penetration of more than 10. (Bacon)

Soft pottery. Pottery, the surface of which is unglazed and easily scratched by a sharp-pointed piece of iron. (Standard)

Softs (Mid.). Coal which breaks easily. (Gresley)

Soft seat (Eng.). Fire clay found under coal seams. (Power)

Soft solder. Solder melting below a red heat; used in tinning, plumbing, etc. (Standard). Usually a tin-lead alloy, which melts at a lower temperature than either the tin or lead.

Soft steel. *See* Mild steel.

Soga (Mex.). A rope or thick cord; a cable for hoisting. (Dwight)

Soggendalite. A name proposed by C. F. Kolderup for a variety of diabase that is especially rich in pyroxene and that is intermediate between true diabases and pyroxenites. The type rock forms a dike near Soggendal, Norway. (Kemp)

Soguilla (Sp.). A small rope for hoisting ore, water, etc.

Soil. 1. Broadly and loosely, the regolith, or blanket of unconsolidated rock material that lies on the bedrock. 2. More precisely, the earthy or sandy layer, ranging in thickness from a few inches to several feet, composed of finely divided rock débris, of whatever origin, mixed with decomposing vegetal and animal matter, which nearly everywhere forms the surface of the ground and in which plants grow or may grow. (La Forge)

Soil cap. The earthy material that often covers naturally the rock. (Standard)

Sol (Colom.). A vein showing fragments of ore at the surface of the ground. (Halse)

Solapa (Colom.). A bituminous schist. (Halse)

Solar. A colloquialism among surveyors to mean an observation on the sun.

Solar compass. A surveyor's compass having a solar attachment. (Webster)

Solar oil. 1. A name given to gas oil from petroleum of the Gulf or Mid-Continent field. 2. A Russian petroleum product possessing a specific gravity above 0.850, but not exceeding 0.880, and a flash-point not below 80° C. It is usually of a very pale yellowish color. 3. Illuminating oil derived from shale. (Bacon)

Solar salt. A coarse salt obtained from brines by solar evaporation. (Standard)

Solayo (Mex.). A cutting-in hole. (Dwight)

Solder. A metal or alloy used to unite adjacent surfaces of less fusible metals or alloys. Soft solder is a compound of tin and lead; hard solder, of copper and zinc, or tin and antimony; gold solder, of gold, silver, and copper; silver solder, of silver and copper, or silver and brass; and so on. (Raymond)

Soldier sprag (N. S. W.) A long sprag used to support the coal seam by placing the upper end of the sprag in the face of the coal between the top of the holing and the roof. (Webster)

Sole. 1. The bottom of a level. 2. The bottom of a reverberatory furnace. (Raymond)
3. (Eng.) A piece of timber set underneath a prop. (Gresley)
4. The major fault plane over which other beds ride forward as a group during distributive faulting. (Leith, p. 49)

Solene. Synonymous with Gasoline and Petroleum ether, which *see*. (Bacon)

Solenhofen stone. A limestone found at Solenhofen, Bavaria, valued for lithographic purposes. (Webster)

Sole piece. *See* Sole, 3.

Sole plate (Scot.). The plate on which a machine rests. (Barrowman)

Solera (Sp.). 1. A stone or cast-iron bottom of a Chilian mill; a hearth stone; well or bottom of a furnace. 2. The lower mill stone. 3. A ground sill. 4. A railroad tie. 5. A rest for grate bars. 6. The shoe of a stamp. (Halse)

Soleta (Spain). A clay band occurring above a coal seam. (Halse)

Solevantamiento (Sp.). Elevation of strata; an uplift. (Lucas)

Solfanaria (It.). A sulphur mine. (Standard)

Solfatara. An expiring or dormant volcanic vent from which steam and vapors are emitted; also a district or area in which volcanic emanations are given off from fissures and small vents. *Compare* Fumarole, Mofette, and Soffioni. (La Forge)

Solicitud (Mex.). The application for a mining claim. Petition. (Dwight)

Solid. 1. Coal that has not been undermined, sheared, cut, or otherwise prepared for blasting. Used in the expression, "Shooting off the solid." 2. That part of the coal which can not be thrown out by a single shot, or the coal beyond the *loose end*. Used in expressions describing holes drilled for blasting as "3 feet into the solid," or "on the solid." (Steel)

Solid crib-timbering. Shaft-timbering with cribs laid solidly upon one another. (Raymond)

Solid-drawn. Drawn from hollow ingots, or otherwise, on mandrels of successively decreasing diameters; said of certain seamless metal tubes. (Standard)

Solid water (Scot.). Water sufficient to fill the pump barrel at each stroke. (Barrowman)

Solid workings (Scot.). In stoop and room workings, the first working or room driven into the solid coal (Barrowman). Distinguished from Pillar-work or Pillar-drawing.

Sollamadizo (Peru). Rock liable to run or cave. (Halse)

Sollame (Peru). A cave or run. *See* Derrumbe. (Halse)

Sollar; Soller. 1. The plank flooring of a gallery covering a gutter-way beneath. 2. The platform in a shaft between two ladders. (Ihlseng)
3. A longitudinal partition forming an air passage between itself and the roof in a working. (Webster)
4. (Mich.). A platform from which trammers shovel or throw the ore or rock into a car. (Lesh *v.* Tamarack Min. Co., 152 N. W. Rept., p. 1022)
See also Saller.

Soluble glass. A simple silicate of potash or soda, or both. (Ure)

Solute. The substance dissolved in a solution. (Rickard)

Solution. 1. The change of matter from the solid or gaseous into the liquid state by its combination with a liquid; when unaccompanied by chemical change, called *physical solution;* otherwise, *chemical solution.* 2. The result of such change; a liquid combination of a liquid and a nonliquid substance. (Standard)

Solution plane. A direction in a crystal of relatively easy solubility, as when the substance is under great pressure. Chemical action along solution planes in minerals in rocks has often resulted in Schillerization. (Webster)

Solution pressure. Pressure due to the tendency of atoms or molecules to pass into solution; specifically, that tending to drive metals into solution, which is the cause of the electric current from a primary battery. (Webster)

Solvay process. A soda-making process by which a concentrated solution of common salt is treated with ammonia and carbon dioxide, yielding sodium bicarbonate, the ammo-

nia being recovered by lime or magnesia; the ammonia-soda process. (Standard)

Sölvsbergite. An aphanitic or slightly porphyritic igneous rock, intermediate between grorudite and tinguaite, having the composition and texture of trachyte. (La Forge) In the most basic variety quartz entirely fails and nephelite appears. (Kemp)

Sombra (Sp.). Shade; gray tinge of certain ores or matrices of ores. (Min. Jour.)

Sombrero (Sp.). 1. A hat. 2. *S. de hierro*, gossan. *See* Colorados. 3. (Peru) A cap-piece used in timbering. 4. A cowl bonnet hood, or dome. (Halse)

Somero (Sp.). Superficial deposits. (Halse)

Sonda (Sp.). A boring tool. (Halse)

Sondear (Sp.). To sink a prospect bore-hole. (Dwight)

Sondeo (Sp.). A prospect bore-hole. (Dwight)

Sooty coal (Eng.). Dull, soft coal. (G. C. Greenwell)

Soplado (Colom.). Alluvium deposited by a cataract or a strong current of water. (Halse)

Soplador (Sp.). A blower of gas. (Halse)

Soplante (Sp.). A blowing engine. (Halse)

Soplar (Sp.). To furnish blast for a furnace. (Dwight)

Soplete (Sp.). Blowpipe; tuyère; *Ensaye al soplete*, a blowpipe assay. (Dwight)

Soplo (Sp.). Blast, as for a furnace. (Dwight)

Soquete (Mex.). 1. Clay for stopping furnace tap. 2. Clay in vein. (Dwight)

Soquetero (Mex.). One who wets and kneads clay to be used at the furnace. (Dwight)

Sordavalite. An old name for the glassy salbands of small diabase dikes formerly regarded as a mineral. It is derived from Sordavala, a locality in Finland. *Compare* Wichtisite. (Kemp)

Soret's principle. That principle by which, if differences of temperature are induced in a solution of common salt or other substance in water, the dissolved material will become relatively concentrated in those portions in which the temperature is lowest. (Ore Dep., p. 64)

Soroche. 1. (Peru) A disease caused by rarefaction of air at great altitudes. 2. *S. plomoso* (Mex.) Lead carbonate; *S. reluciente*, argentiferous galena. (Dwight)

Sorter. One who sorts or classifies ore by hand.

Sorting hammer. A hammer for breaking up ores in sorting. (Standard)

Sory. A black earth impregnated with vitriol; vitriols in general. (Webster)

Sos (So. Staff.). To sink into the floor under great pressure from overlying strata (Gresley). Said of mine timbers and pillars.

Sosa (Sp.). 1. Soda ash. 2. Native carbonate of soda. (Halse)

Soterramiento (Sp.). The caving-in of mine workings. (Halse)

Sotlanque (Mex.). Chalcopyrite.

Sotominero (Sp.). A deputy mine captain. (Lucas)

Souffle. Spotted or mottled by blowing liquid color upon it, as through lace or network; said of pottery decoration. (Standard)

Sough (Eng.). An adit for draining a mine; a ditch; a drain. (Webster)

Sounding. 1. Knocking on a roof to see whether it is sound or safe to work under. 2. Rapping on a pillar to signal a person on the other side of it, or to enable him to estimate its width. (Steel)

Sour. 1. Having an acid or tart taste. Applied to minerals having the taste of sulphuric acid. (Dana)
2. To macerate and render fit for plaster or mortar; said of lime. (Webster)

Souténement (Fr.). The propping and packing to support the roof. (Gresley)

South Staffordshire or Thick-seam method. *See* Room-and-pillar method.

Sow. 1. A tool used in sharpening machine-drill bits. (Gillette, p. 54) 2. A channel or runner which conducts the molten metal to the rows of molds in the pig bed. 3. A mass of metal solidified in such a channel or mold. (Webster)

4. An accretion that frequently forms in the hearth or crucible of a furnace. It consists mainly of iron. Also called Salamander, Bear, or Shadrach. 5. (Western U. S.) A movable shed used as a protection by miners. (Standard)

Sowback. Same as hogback or horseback; a kame or drumlin.

Soyote (Mex.). Vug. (Dwight)

Spaad. A fibrous talc. From the German *spath.* (Webster)

Space of discission. *See* Discission.

Space of dissolution. *See* Dissolution.

Spacing. In quarrying, the distance between drill holes in a row. (Bowles)

Spad. *See* Spud.

Spadé. A cameo-cutter's tool, used with diamond powder. (Webster)

Spadiard (Corn.). A worker in the tin mines. (Standard) Also Spalliard.

Spal (Corn.). *See* Spall.

Spale. 1. (Corn.) In mining, to fine for disobedience of orders. (Raymond)
2. A variation of Spall, 1.

Spall; Spawl. 1. To break ore. Ragging and cobbing are, respectively, coarser and finer breaking than spalling, but the terms are often used interchangeably. Pieces of ore thus broken are called spalls. (Raymond)
2. In masonry, to reduce irregular blocks of stone, approximately to size by chipping with the hammer. (Webster)

Spalliard; Spallier. (Eng.). A pickman; a working miner. A laborer in tin works. (Pryce)

Spalling-floor. A place for spalling. (Standard)

Spalt. A scaly whitish mineral, used as a flux for metals. (Standard)

Span-beam (Eng.). A long wooden beam supporting the head pivot of the drum axle of a gin, and resting at the extremities upon inclined legs. (Gresley)

Spangle gold (Aust.). Smooth, flat scales of gold. (Davies)

Spanish chalk. A variety of talc or soapstone from Aragon, Spain. (Century)

Spanish furnace. A form of reverberatory furnace used in the lead districts of Spain. (Century)

Spanish ocher. A variety of red ocher. (Standard)

Spanish tile. Roofing tile having an S-shaped cross section. (Ries)

Spanish topaz. *See* False topaz.

Spar. 1. As used, loosely, almost any transparent or translucent, readily cleavable, crystalline mineral having a vitreous luster (La Forge), as calcspar, fluorspar, feldspar, heavyspar, etc.
2. A Cornish name for quartz.

Sparable tin (Corn.). Tin ore in grains like sparables or small nails. (Webster)

Spare (No. of Eng.). A wedge from 6 to 8 inches long, for driving behind plates when adjusting them to the circle of the shaft (Gresley). Also called Spear wedge.

Sparkle metal. A copper matte containing about 74 per cent copper. (Webster)

Sparry. Resembling, consisting of, or abounding with spar; spathic. (Webster)

Sparry coal (Scot.). Coal, the backs or joints of which are filled with calcite. (Barrowman)

Sparry iron. Siderite. (Webster)

Sparry lode. A lode filled with spar, *e. g.*, fluorspar, calcspar, or heavyspar. (Power)

Spartaite. A variety of calcite containing some manganese. (Century)

Spathic. Of, pertaining to, or resembling spar, especially, having cleavage. (Standard)

Spathic iron ore. *See* Siderite.

Spathose. Same as Spathic.

Spatter cone. A secondary or "parasitic" lava cone. (Chamberlin, vol. 1, p. 580)

Spattle. 1. To sprinkle, as earthenware, with glaze or colored slip; to make pasty-colored ware. 2. A tool for mottling a molded article. (Standard)

Spattling-machine. A machine for spattling earthenware. (Standard)

Spatula. An implement shaped like a knife, flat, thin, and somewhat flexible. Used especially in chemical laboratories and assay offices.

Spavin; Spavan (York.). Clunch, or ordinary bottom or underclay. (Gresley)

Spawl. *See* Spall.

Speak (Aust.). To give signs of weight by cracking. Said of mine props. (Power)

Speaking flame-lamp (Eng.). An early type of safety lamp. *See* Singing lamp.

Spear (Eng.). A wooden pump rod cut into lengths of about 40 feet, and, for heavy work, often measuring 16 inches square. Wrought-iron spears are also used. (Gresley)

Spear plates (Eng.). Wrought-iron plates bolted to the sides of spears where joined together. (Gresley)

Spear pyrite. A variety of marcasite, in twin crystals resembling the head of a spear. (Webster)

Spear-wedge (Aust.). A long wooden wedge used for centering iron tubbing and which helps to pack up the space between the tubbing and the rock (Power). Also called Spare.

Special place (Aust.). A place where coal cannot be won so easily as in ordinary working places; *e. g.*, development work, headings, etc. (Power)

Special steel. Steel in which another element than carbon gives the characteristic hardness, as chrome or nickel steel. (Standard)

Specific gravity. The ratio of the weight of a body to that of an equal volume of some standard substance, water in the case of solids and liquids, air in the case of gases; numerically equal to the density. (Standard)

Specific heat. The number of units of heat required to raise a unit of mass of any substance one degree in temperature. (Standard)

Specimen. Properly speaking, a sample of anything; but among miners it is often restricted to selected or handsome minerals, as fine pieces of ore, crystals, or pieces of quartz containing visible gold. (Roy. Com.)

Speckstone. Adapted from Speckstein, "bacon-stone"; an early name for talc, because it feels greasy. (Chester)

Spectacle. A two-handled frame for carrying well-boring tools. (Standard)

Spectacle furnace. A form of shaft-furnace, used in Germany, with two tap holes, having an inclined bottom from which the melted metal flows into an outside receptacle. (Standard)

Spectacle stone. An early popular name for selenite, alluding to its transparency. (Chester)

Spectroscope. An instrument used to produce a spectrum of the light from any source by the passage of the rays through a prism or their reflection from a grating, and for the study of the spectrum so formed. (Century)

Spectrum. The continuous band of light showing the successive prismatic colors or the insolated lines or bands of color. (Century)

Specular. Mirror-like, as *specular* iron ore, which is a hard variety of hematite. *See* Specularite.

Specular coal. Same as Pitch coal.

Specular iron. *See* Specularite.

Specularite; Specular hematite; Specular iron; Gray hematite. An iron oxide, Fe_2O_3, occurring in tabular or disklike crystals of gray color and splendent metallic luster. Also called "micaceous hematite" if occurring in foliated or micaceous masses. Contains 70 per cent iron. *See* Hematite. (U. S. Geol. Surv.)

Specular schist. *See* Itabirite.

Specular slate-ore. A laminated ore with smooth face and brilliant reflection (Standard). *Compare* Itabirite.

Specular stone. Mica. (Standard)

Speculum metal. An alloy of copper, 66, and tin, 33 parts (Ure). Used in making the mirrors of reflecting telescopes.

Speed (Corn.). A quick, but wasteful way of dressing, or rather coarse cleaning of copper ore, by an iron grate in a swift current of water. (Pryce)

Speiss; Speise (Ger.). A basic arsenide, or antimonide of iron, often with nickel, cobalt, lead, bismuth, copper, etc., having a metallic luster, high specific gravity, and strong tendency toward crystallization. It takes up gold with avidity, but has a less affinity for silver than copper matte. The speiss obtained in lead-smelting is an arsenical speiss. Antimonial speiss is occasionally made in smelting skimmings. (Peters, p

231; Hofman, p. 354). Impure metallic arsenides (principally of iron), produced in copper and lead smelting. Cobalt and nickel are found concentrated in the speiss obtained from ores containing these metals. (Raymond)

Spell. A rest period for crews at furnace, stock house, etc., or a period of work in drilling the tap hole (Willcox). A change or turn.

Spellerizing. Subjecting the heated bloom to the action of rolls having regularly shaped projections on their working surface, then subjecting the bloom while still hot to the action of smooth-faced rolls. The surface working is said to give a dense texture to pipe made from the bloom, adapting it to resist corrosion. (Liddell)

Spelter. The zinc of commerce, more or less impure, in slabs, plates or ingots cast from molten metal. It does not include zinc dust.

Spelter solder. Hard solder containing zinc. (Standard)

Spence automatic desulphurizer. An improved Malétra furnace provided with automatic rakes. (Peters, p. 220)

Spence furnace. A furnace of the muffle or reverberatory type, the ore being supported on shelves and stirred mechanically. (Ingalls, p. 156; Peters, p. 214)

Spend. 1. To break ground; to continue working. (Raymond)
2. To exhaust by mining; dig out; used in the phrase *to spend ground.* (Standard)

Spent shot. A blast hole that has been fired, but has not done its work. (C. and M. M. P.)

Sperrylite. Platinum arsenide, $PtAs_2$. The theoretically pure mineral would contain 56.5 per cent platinum, but antimony and rhodium are also present in small quantities. (U. S. Geol. Surv.)

Spessartite. 1. A variety of garnet. *See* Garnet. (U. S. Geol. Surv.)
2. A dike rock which, whether porphyritic or granitoid in texture, consists of prevailing plagioclase, hornblende, and diopside. Orthoclase and olivine occasionally appear. The name is derived from Spessart, a group of mountains in the extreme northwest of Bavaria, but as it has already been used for a variety of garnet, it is a very unfortunate selection. (Kemp)

Spew. The cauliflower-like blowout or outcrop of a lode that extends beyond the limits of the defined vein deeper down. (Power)

Spewing. An exudation of soft material through gravelly or broken stuff bedded on mud, soft wet clay, or the like. (Webster)

Sphærite. A hydrous phosphate of aluminum, allied to Wavellite. (Century)

Sphalerite; Blende; Blackjack; Jack; Rosinjack; Zinc blende. A sulphide of zinc, ZnS, crystallizing in isometric forms. Contains 67 per cent zinc. *See* Wurtzite (U. S. Geol. Surv.). Called also Mock-lead; False galena.

Sphene. Calcium silicotitanite, $CaTiSiO_5$ (Dana). Called also Titanite.

Sphenoid. In crystallography, a hemihedral form (1) of the orthorhombic system included under four equal scalene triangular faces, or (2) of the tetragonal system included under four equal isosceles triangular faces. (Standard)

Sphenolith. A term invented to distinguish the special form and relations of intrusion at Las Parroquias, Mexico. A rock mass of the injected class, partly concordant like a thick sill, and partly discordant. The country rocks have been displaced and even overturned. (Daly, p. 88)

Sphere ore. Fragments of rock encrusted with metallic minerals. Cocarde ore. (Power)

Spherocobaltite. Cobalt carbonate in spherical masses and having a peach-blossom red color. (Century)

Sphero-crystal. A homogeneous spherulite formed of minute crystals branching outward from the center (Standard). *See* Spherulite.

Spheroidal. 1. A descriptive term applied to igneous rocks that break up on cooling into spheroidal masses analogous to basaltic columns; also used as a synonym of orbicular as applied to certain granites. (Kemp)
2. In crystallography, enclosed by convex surfaces. (Standard)

Spherosiderite. A variety of iron carbonate occurring in globular concretionary forms. (Century)

Spherulite. A rounded or spheroidal aggregate, not uncommonly concentrically zoned, more rarely hollow, of radiating, prismatic or lath-like crys-

tals of one or more minerals, formed in some igneous rocks under certain conditions of crystallization. (La Forge)

Spherulitic ore. A globule of ore having a radiated structure. Sphere ore. (Power)

Spider. A skeleton or frame having radiating arms or members, as a casting forming the hub and spokes to which the rim of a wheel is secured (Webster). *See* Drum horns.

Spider-web rock (Ohio). A local term for sandstone beds that show cross bedding on a small scale, which is complicated by intricate interlacing of fine bedding planes (Bowles). Frequently seen in sawed stones, especially where the lamination is slightly oblique or irregular. It is very like the grain of wood that shows in a planed board. (Merrill)

Spiegeleisen. Manganiferous white cast iron (Raymond). Used in the manufacture of steel by the Bessemer process. Called Spiegel; Spiegel-iron.

Spigot. 1. The end of a pipe, fitting or valve that is inserted into the bell end. 2. The tapered male part of an inserted joint, as in plumber's wiped joint. 3. A cock, tap, or faucet used to draw water, etc. (Nat. Tube Co.)

Spigot joint. A pipe joint made by tapering down the end of one piece and inserting it into a correspondingly widened opening in the end of another piece. Sometimes called Faucet joint. (Nat. Tube Co.)

Spike amygdule. A cylindrical amygdule whose longer axis is at right angles to the bedding. (Standard)

Spike team. 1. A team consisting of three draft animals, two of which are at the pole while the third leads (Century). Three mules, two abreast and one in the lead, used in a mine to haul coal cars. (Himrod Coal Co. *v.* Clingan, 114, Illinois App., p. 570)
2. (Ark.) A tandem team of mules for hauling coal. (Steel)

Spiking curb (Eng.). A curb to the inside of which plank tubing is spiked. (Raymond)

Spilching (Eng.). A soft, friable machine-made brick. (Standard)

Spile. 1. A temporary lagging driven ahead on levels in loose ground. *See* Spill. 2. A short piece of plank sharpened flatways and used for driving into watery strata as sheet piling to assist in checking the flow. (Steel)
3. A large timber for forcing into the ground to serve as a foundation; a pile. (Standard)

Spilite. An early French name for dense, amygdaloidal varieties of diabase. (Kemp)

Spill. Any of the thick laths or poles driven ahead of the main timbering to support the roof or sides in advancing a level in loose ground, or to support the sides of a shaft when sinking through a stratum of loose ground (Webster). Same as Spile, 1 and 2.

Spilling (Corn.). A process of driving or sinking through very loose ground (Raymond). Also the flat timbers used in the process. *See* Spile; *also* Spill.

Spill-trough. A trough to receive melted brass that may be spilled in pouring from a crucible into a flask. (Standard)

Spillway. 1. A passage for superfluous water in a reservoir, to prevent too great pressure on the dam. 2. A paved apron or a dam over which the water flows. (Webster)

Spilosite. A contact metamorphic rock composed chiefly of chloritic and feldspathic material and formed from shale or argillite by the heat of diabasic intrusions (La Forge). It corresponds to the hornfels of granite contacts. (Kemp)

Spindle. 1. In founding, a rod or pipe used in forming a core. (Standard)
2. (Derb.) A small piece of wood set in the ground to mark the boundary of a mine. (Mander)

Spindle breaker. A gyratory rock breaker or crusher. (Richards, p. 1206)

Spindle oil. The lighter portion of the petroleum distillates suitable for lubrication of light-running machinery. (Bacon)

Spine. A mass of igneous rock solidified in the vent of a volcano; a plug. (Daily, p. 130)

Spinel. An isometric mineral, typically magnesium alluminate, $MgO.Al_2O_3$. The magnesium may be in part replaced by ferrous iron, or manganese, and the aluminum by ferric iron and chromium. Spinel is red, yellow, green, black, and other colors, and is used as a gem. (U. S. Geol. Surv.)

Spiracle. One of the minute cones formed on the surface of a liquid lava stream by steam or gases escaping from the mass. Called also Bocca. (Standard)

Spiral. A spiral coal chute that mechanically separates the slate from the coal. The coal being irregular in shape and light falls over the edge of the spiral due to centrifugal force, while the flatter and heavier slate adheres somewhat to the chute surface and is carried down to a special pocket.

Spiral drum. A kind of conical winding drum. (Gresley)

Spiral worm (Eng.). A tool for extricating broken boring rods. (Gresley)

Spire. 1. The tube carrying the train to the charge in a blast hole. Also called Reed or Rush, because these, as well as spires of grass, are used for the purpose. (Raymond) A kind of fuse.
2. (Leic.) Coal of a hard, dull, slaty, nature, and difficult to break. (Gresley)

Spirit of alum. An aqueous solution of sulphur dioxide. (Webster)

Spirit of copper. Acetic acid obtained by distilling copper acetate.

Spirit of salt. Hydrochloric acid; formerly so called. (Standard)

Spirit of tin. Stannic chloride. (Webster)

Spirit of vitriol. Sulphuric acid; oil of vitriol. (Webster)

Spit. 1. A small point of land extending into a body of water, or a long, narrow shoal extending from the shore. (Webster)
2. To light a fuse. (Duryee)
3. (Prov. Eng.) A spade's depth in digging. 4. (Virginia, U. S.) In brickmaking, a certain amount of brick clay. (Standard)

Spitting. 1. An action of or appearance on the surface of slowly cooled large masses of melted silver or platinum, in which the crust is forcibly perforated by jets of oxygen, often carrying with them drops of molten metal. Called also Sprouting. (Standard)
2. Lighting the fuse for a blast. (Du Pont)

Spitzkasten. A series of hopper-shaped or pointed boxes for separating mineral-bearing slimes, according to fineness, in which the width of each box is double that of its predecessor, while the lengths increase by arithmetical progression (Richards). *See* Funnel box.

Spitzlutte. A device, for classifying ore slimes, consisting of a V-shaped box, as distinguished from the pyramidal boxes of the spitzkasten. Classification is dependent on the downward movement of ore particles in a rising stream of water admitted at the bottom. (Liddell)

Splasher. A plate lined with fire brick and placed over the iron trough next to the tap hole to keep down flame that blows from the tap hole during a cast. (Willcox)

Splendent. Applied to the degree of luster of a mineral, reflecting with brilliancy and giving well-defined images, as hematite, cassiterite. (Dana)

Splent (Aust.). *See* Splint.

Spliced. Applied to veins when they pinch out and are overlapped at that point by another parallel one. (Power)

Splint; Splint coal. A hard variety of bituminous coal that ignites with difficulty, owing to its slaty structure, but makes a clear, hot fire. Called also Splent; Splent-coal. (Standard)

Split. 1. To divide an air current into two or more separate currents. 2. Any division or branch of the ventilating current. 3. The workings ventilated by that branch. 4. Any member of a coal bed split by thick partings into two or more seams. 5. A bench separated by a considerable interval from the other benches of a coal bed. (Steel)
6. To divide a pillar or post by driving through it one or more roads. (Gresley)

Split brilliant. A brilliant split apart at the base of its pyramidal forms, so as to make two gems. (Standard)

Split rock. A rock possessing tabular structure, or which cleaves easily in the lines of lamination, and consequently suitable for flagging and curbstones. (Merrill)

Split shovel. A device for sampling ore, consisting of a fork in which the prongs are separate scoops, each scoop being the same width as the open spaces between. (Richards, p. 844)

Split the air (Scot.). Same as Split, 1.

Splitter. One employed in the mica industry whose duty it is to separate mica into thin sheets.

Splitting knife. A knife used for diamond cleaving. (Standard)

Splittings (Lanc.). Two horizontal level headings driven through a pillar, in pillar workings, in order to mine the pillar coal. (Gresley)

Splitting shot (Ark.). A shot put into a large mass of coal detached by a previous blast (Steel). *See* Block hole.

Spodumene. Lithium-aluminum silicate, $Li_2O.Al_2O_3.4SiO_2$. Used as a source of lithia, of which it contains as a maximum 8.4 per cent. The clear green variety, hiddenite, and the clear pink or lilac, kunzite, are used as gems. (U. S. Geol. Surv.)

Spoil. 1. Débris or waste material from a coal mine. (C. and M. M. P.) 2. (Eng.) A stratum of coal and dirt mixed. (Gresley)

Spoil bank; Spoil heap (Eng.). The place on the surface where spoil is deposited. (Gresley)

Sponge. Metal in a porous form, usually obtained by reduction without fusion. *See* Chenot process. (Raymond) A porous, sponge-like form assumed by finely divided metals, as iron and platinum, in which condition they are serviceable as oxidizing agents. (Standard)

Spongy iron. *See* Reduced iron, *also* Sponge.

Spontaneous combustion. Combustion produced in a substance by the evolution of heat through the chemical action of its own constituents. (Webster)

Spoon. 1. An instrument made of an ox or buffalo horn, in which earth or pulp may be delicately tested by washing to detect gold, amalgam, etc. 2. *See* Spoon end. (Raymond) 3. A slender iron rod with a cup-shaped projection at right angles to the rod, used for scraping drillings out of a bore hole. (Steel)

Spoon end. The edge of a coal basin when the coal seam spoons, *i. e.*, rises to the surface after growing thinner as it approaches its termination. Also called Spoon. (Power)

Spore coal. Coal formed out of the spores of lycopods. (Power)

Spotted. An irregularity of the ore content of any vein; pockety.

Spout. 1. (So. Staff.) A short underground passage connecting a main road with an air heading. (Gresley) 2. (Newc.) A box or trough down which coal is run from the wagons or cars into ships. (Min. Jour.)

Spouter. An oil well the flow of which has not been controlled by the engineers. (Webster)

Spout hole (So. Wales). A short siding upon which trams are loaded in the mine. (Gresley)

Spout mouth (Scot.). A place on a level road where the material from a spout (or chute) is filled into the cars. (Barrowman)

Spout road (Scot.). A chute so steep that the mineral slides down to the haulage level. (Barrowman)

Sprag. 1. A short wooden prop set in a slanting position for keeping up the coal during the operation of holing. 2. A short round piece of hardwood, pointed at both ends, to act as a brake when placed between the spokes of a mine-car wheel. 3. (Arkansas). Heavy slanting props wedged against the coal to prevent it from flying when blasted. (Steel)

Spragger. One who travels with the trip of cars to attend to sprags and switches (Hargis). *See* Sprag, 2.

Sprag road. A mine road having such a sharp grade that sprags are needed to control the descent of the car,—hence, Two, Three, or Four-Sprag-road. (Chance). *See* Sprag, 2.

Spreader. 1. A horizontal timber below the cap of a set, to stiffen the legs, and to support the brattice when there are two air courses in the same gangway. 2. A piece of timber stretched across a shaft as a temporary support of the walls. (Raymond) 3. A tool used in sharpening machine-drill bits. (Gillette, p. 53) 4. A bar used as a distance piece, as any of a series of cross bearers to support a line of rails in an adit. (Webster)

Spring. 1. A general name for any discharge of deep-seated hot or cold, pure or mineralized water. (Power) 2. To enlarge the bottom of a drill hole by small charges of a high explosives in order to make room for the full charge; to chamber a drill hole.

Spring beams (Eng.). Two stout parallel timbers built into a Cornish pumping-engine house, nearly on a level with the engine beam, for catching the beam, etc., and preventing a smash in case of accident. (Gresley)

Spring dart (Eng.). An arrow or fish-headed boring tool for extricating a lost implement, or for withdrawing lining tubes. (Gresley)

Spring dog (Scot.). Same as Spring hook.

Spring hook (Eng.). An iron hook attached to the end of a winding, capstan, or crab rope, fitted with a spring for closing the opening, and thus preventing the kibble or tub from falling off. (Gresley)

Springing. *See* Spring, 2. Also called Bullying; Chambering; Shaking a hole.

Springing line. The line from which an arch springs or rises. (Century)

Spring latch. The latch or tongue of an automatic switch, operated by a spring at the side of the mine track. (Steel)

Spring pole. An elastic wooden pole from which boring rods are suspended (Steel). Also sometimes employed for shallow pumping, when it is actuated by cams or cranks from an engine. (Gresley)

Spring steel. A variety of rolled steel, elastic, strong, and tough, used for springs, etc. (Webster)

Sprocket wheel (Eng.). Rag wheel. A wheel with teeth or pins which catch in the links of a chain. (C. and M. M. P.)

Spruce ocher. Brown or yellow ocher. (Century)

Sprue. 1. A piece of metal attached to a casting, occupying the gate or passage through which the metal was poured. (Raymond)
2. A molder's rod for making sprue holes. (Standard)

Sprue hole. A pouring hole in a mold; a gate. (Standard)

Spud. 1. A nail, resembling a horse-shoe nail, with a hole in the head, driven into mine timbering, or into a wooden plug inserted in the rock, to mark a surveying station (Raymond). *Also* Spad.
2. To work the boring tool by means of the bull wheel alone in starting an oil well. 3. A potato. (Webster)
4. A long steel or wooden pole used for anchoring a dredge. (Weatherbe)
5. A tool having a long curved blade used to work around and recover tools from a bored well. (Standard)

Spudding bit. A broad dull drilling tool for working in earth down to the rock. (Standard)

Spud setter. A mine surveyor. Compare Spud, 1.

Spunney (Lanc.). A selfacting plane or incline. (Gresley)

Spur. 1. (Scot.) A portion of the coal left unholed to support the coal seam till the rest of the holing is completed. Frequently called Spurring; also Spurn. (Barrowman)
2. A ridge or small elevation that extends from a mountain, or range of mountains, projecting to some distance in a lateral direction, or at right angles. 3. (Eng.) To prop or brace. (Webster)
4. A branch leaving a vein, but not returning to it. (Raymond)
5. A prism or tripod of refractory clay, to support an article while being baked; a stilt. (Standard)

Spurns (So. Staff.). Small connecting masses of coal, left for safety during the operation of cutting, between the hanging coal and the main body. *See* Spur, 1. (Raymond)

Spur road (Scot.). A branch road leading from a main level. (Gresley)

Spurt (Forest of Dean). A disintegrated stone. (Gresley)

Spur track. In railroading, a short branch line of track; a stub track. (Webster)

Squad. 1. (Prov. Eng.) Mire; slime; mud. 2. A small bunch of loose tin ore mixed with earth. Also called Squat. (Standard)

Squander (York.). To extinguish an underground fire. (Gresley)

Squareman (Eng.). A stone-cutter or stone-dresser. (Standard)

Square-set. A set of timbers composed of a cap, girt and post. These members meet so as to form a solid 90°-angle. They are so framed at the intersection as to form a compression joint, and join with three other similar sets. The posts are 6 or 7 feet high while the caps and girts are 4 to 6 feet long.

Square-set and fill. *See* Square-set stoping.

Square-set slicing. *See* Top slicing and cover caving.

Square-set stoping. The use of square-set timbering as an essential feature of overhand stoping. The stope may be worked in horizontal slices, as a stepped face, or in vertical slices. The modifications are Open stope, Partly filled stope, Filled stope, Vertical slice (underhand), Vertical slice (overhand), Alternate pillar and stope, cover the more important variations (Young). Also known as Nevada system, Square-set underhand, Pillar and stope, Back filling method, and Square-set and fill.

Square-set system. A method of mine timbering in which heavy timbers are framed together in rectangular sets, 6 or 7 feet high, and 4 to 6 feet square, so as to fill in as the ore body is removed by overhand stoping. (Webster)

Square-set underhand. *See* Square-set stoping.

Square timbering (Eng.). The formation of a shaft through an excavation. It consists of square settings or frames at intervals, close-poled behind. (Simms)

Square work. 1. (So. Staff.) An old system of working the thick coal by mining the upper beds first and then the lower ones. 2. A system of working a seam of coal by cutting it up into square blocks or pillars. *See* Stoop-and-room. (Gresley)

Square work and caving. *See* Sub-level stoping.

Squat. 1. (Corn.) Tin ore mixed with spar (Raymond). Also called Squad
2. A small ore body in a vein. (Standard)

Squat lads! Fall flat down on the floor! In the early days of coal mining, igniting the gas was a very common thing; so, whenever an explosion took place, the colliers shouted to one another, "Squat, lads!" *See* She's fired! (Gresley)

Squat of ore (Eng.). A bunch of ore. (Min. Jour.) *See* Squat.

Squealer. A shot that breaks the coal only enough to allow the gases of detonation to escape with a whistling sound; also called a whistler. (C. and M. M. P.)

Squeal-out (Ark.). *See* Seam-out; Squealer.

Squealy coal (Ark.). Seamy coal from which the powder gases escape with a squealing sound. (Steel)

Squeeze. 1. The settling, without breaking, of the roof over a considerable area of working (Raymond). Also called Creep, Crush, Pinch, and Nip.
2. The gradual upheaval of the floor of a mine, due to the weight of the overlying strata. (Woodson)

Squeezer. A machine for reducing the puddle-ball to a compact mass, ready for the hammer or rolls. (Raymond). Also called Alligator.

Squeezing-box. A metal cylinder having at its bottom an orifice through which a mass of plastic clay is forced in the shape of a long roll, from which handles may be cut, as for jugs. (Standard)

Squib. 1. A tapered paper tube, about 7 inches long, filled with fine gunpowder, one end of the tube being treated with chemicals so as to form a slow burning match, which, when ignited, burns so slowly as to give the miner time to reach a place of safety before the explosion. When used, the squib is placed in the needle hole, or blasting barrel, through the tamping, with the match end of the squib outward. (U. S. Bu. Mines, Bull. 17, p. 33)
2. Small charge of powder exploded in the bottom of a drill hole, to spring the rock, after which a heavy shot is fired (Steel). A springing shot.
3. In well boring, a vessel, containing the explosive and fitted with a time fuse, that is lowered into a well to detonate the nitroglycerin charge. (Nat. Tube Co.)

Squib shot. A blast with a small quantity of high explosives fired at some point in the bore hole for the purpose of dislodging some foreign material which has fallen into it. (Du Pont)

Squirting. Forcing lead by hydraulic pressure into the form of rods or pipes. (Raymond)

Stable-boss. A man placed in charge of the stables and of the animals employed at a mine.

Stack. 1. A chimney. 2. A shaft furnace. (Raymond)
3. To build up coal, ironstone, etc., into heaps on the surface for winter or other use. (Gresley)

4. In gas works, a row of benches containing retorts. 5. One of the piles or layers of dung or tan, pots containing acid, and sheets or wickets of lead, in the old processes for making white lead. (Webster)
6. (Eng.) A measure of fuel consisting of 108 cubic feet. (Standard)

Stacker. 1. One who stacks coal, etc.
2. (Leic.) A miner who looked after the unloading of the coal on the bank, on behalf of the miners, in the earlier days of mining. (Gresley)
3. A device fixed at the rear of a dredge and carrying a conveyer belt to stack the waste material behind the boat so that it will not interfere with navigation. (Weatherbe, p. 71)

Stack out (Mid.). To dam off or shut up the entrance to a goaf by building a wall of stone, coal, and clay in front of it. (Gresley)

Staddle (Mid.). The foundation of a pack in ironstone workings. (Gresley)

Stadia. In surveying: 1. A temporary station. 2. A stadia rod. (Webster)
3. An instrument for measuring distances, consisting of a telescope with special horizontal parallel lines or wires, used in connection with a vertical graduated rod; also, the rod alone, or the method of using it. (Standard)

Stadia rod. A graduated rod used with an instrument of the stadia class to measure the distance from the observation point to the place where the rod is positioned. (Webster)

Stadia tables. Mathematical tables from which may be found, without computation, the horizontal and vertical components of a reading made with a transit and stadia rod.

Staff. 1. A body of assistants serving to carry into effect the plans of a superintendent or manager. (Webster)
2. A surveyor's leveling rod. 3. An iron puddler's rabble or rabbler. (Standard)

Staff hole. A small hole in a puddling furnace through which the puddler heats his staff. *See* Staff, 3. (Century)

Stage (Eng.). 1. The pit bank. 2. A certain length of underground roadway worked by one horse. (Gresley)
3. (Scot.) A narrow whin dike, especially one where the material of which the dike is composed is soft. (Barrowman)
4. In the nomenclature adopted by the International Geological Congress, the stratigraphic subdivision of the fourth rank; a division of a *series*. The chronologic term of equivalent rank is *age*. (These terms have not been adopted by the U. S. Geological Survey and they have no exact equivalents in the nomenclature used by that Survey.) (La Forge)
5. A platform on which mine cars stand. (C. and M. M. P.)

Stage crushing. A method of ore or stone crushing in which there is a series of crushers, each one crushing finer than the one preceding.

Stage pumping. Draining a mine by means of two or more pumps placed at different levels, each of which raises the water to the next pump above or to the surface.

Stage working. A system of working minerals by removing the strata above the beds, after which the various beds are removed in steps or stages. (C. and M. M. P.)

Staging. A temporary flooring or scaffold, or platform. (C. and M. M. P.)

Stahlstein (Steelstone). The German name for some pure crystalline carbonate of iron, because a kind of steel is readily made from such ores without passing through the process of cementation. (Page)

Stainless steel. *See* Chromium steel.

Stair pit (Scot.). A shallow shaft or staple in a mine fitted with a ladder or steps. (Gresley)

Staithe (No. of Eng.). A depot in which coal is placed when it comes from collieries by wagons, to be ready to be loaded into keels (boats). (Gresley)

Staithman (Eng.). A man employed at a staithe in weighing and shipping coal. (Standard)

Stake. 1. (Leic.). To fasten back or prop open with a piece of chain or otherwise the valves or clacks of a water barrel, in order that the water may run back into the sump when necessary. (Gresley)
2. Short for grubstake. 3. A property or interest involved. (Webster)
4. A pointed piece of wood driven into the ground to mark a boundary, survey station, elevation, etc.

Stalactite. Depending, columnar deposits, generally of calcite, formed on the roof of a cavern by the drip of mineral solutions. *Compare* Stalagmite. (Kemp)

Stalactitic marble; Stalagmitic marble. Marble obtained from the calcareous deposits on the roofs and floors of caves. Such are often beautifully banded and are known commercially as onyx marbles. (Merrill)

Stalagmite. Uprising, columnar deposits, generally of calcite, formed on the floor of a cavern by the drip of mineral solutions from the roof. *Compare* Stalactite.

Stalch (Eng.). A mass of ore left in a mine. (Hunt)

Stall. 1. (So. Staff.). A working place in a mine, varying in length from a few feet to 80 yards or more, according to the thickness of the seam and system of working adopted (Gresley). A room.
2. A small compartment in a furnace or kiln where ore is roasted. *See* Stall roasting.

Stall-and-breast. *See* Room-and-pillar method.

Stall-and-room work (Eng.). Working the coal in compartments, or in isolated chambers, leaving pillars to support the roof. (Gresley)

Stall gate; Stall road (Eng.). A road along which the mineral worked in a stall is conveyed to the main road. (Gresley)

Stalling (Eng.). Working in a stall, in the capacity of a butty or contractor. (Gresley)

Stall roasting. The roasting of ore in small enclosures of earth or masonry walls. The enclosures are called stalls and may be open or closed. (Peters, p. 140; Hofman, p. 361)

Stamp. 1. To break up the ore and gangue by machinery, for washing out the heavier metallic particles. (Whitney)
2. A heavy pestle raised by steam or other power for crushing ore. Those stamps in which the blow of the pestle is caused by its mere weight are called *gravity* stamps. *See* Stamp head. *See* Steam stamp.
3. (Eng.) A section of a bloom nicked or partially cut through, or broken off to show the grain. (Webster)
4. (Scot.). A hole or mark in the roof of a mine working from which measurements may be taken. (Barrowman)
5. (Eng.) A hole made in coal, with the pick, in which the wedge is fixed before driving. (G. C. Greenwell)
6. In brickmaking, to remove from an undried brick the rough edge caused by a mold-vent. (Standard)

Stamp battery. A heavy iron pestle working mechanically in a huge iron mortar. Generally grouped in units of five per mortar. Stamps vary up to 2,000 pounds in weight, dropping 6 to 8 inches and 100 or more times per minute. (Liddell)

Stamp copper. Copper produced from copper-bearing rock by stamping and washing before smelting.

Stamp duty. The amount of ore (tons) that one stamp will crush in 24 hours.

Stampede. Any sudden or impulsive movement on the part of a crowd or large company (Standard), as a *stampede* to a new gold field.

Stampeder. One who rushes into a new district when a discovery of gold or other precious metal is reported. *See* Rusher.

Stamper. A mill for powdering calcined flints for use in making porcelain. (Standard)

Stamper box. A stamp-mill mortar box. (Roy. Com.)

Stamp hammer. A power hammer that rises and falls vertically, like an ore stamp. (Webster)

Stamp head. A heavy and nearly cylindrical cast-iron head fixed on the lower end of the stamp rod, shank or lifter to give weight in stamping the ore. The lower surface of the stamp head is generally protected by a cheese-shaped "shoe" of harder iron or steel which may be removed when worn out. These shoes work upon "dies" of the same form laid in the bottom of the mortar or stamper box (Roy. Com.). *See* Stamp, 2.

Stamping. Reducing to the desired fineness in a stamp mill. The grain is usually not so fine as that produced by grinding in pans. (Raymond)

Stamping maundril (Leic.). A heavy pick. (Gresley)

Stamp mill. An apparatus (also the building containing the apparatus) in which rock is crushed by descending pestles (stamps), operated by water or steam-power. Amalgamation is usually combined with the

crushing when gold or silver is the metal sought, but copper and tin-ores, etc., are stamped to prepare them for dressing. (Raymond)

Stamp rock (Mich.). Rock containing fine copper that must be crushed and jigged to recover the metal. (Weed)

Stamps (So. Wales). The pieces into which the rough bars shingled from the finery ball are broken, to be piled for subsequent rolling into sheet-iron. (Raymond)

Stamps captain (Corn.). The superintendent or foreman of a stamp mill. (Pryce)

Stamp shoe. The heavy chilled iron casting attached to the lower end of a stamp piston, that does the actual crushing of rock in a stamp mill. It drops on a round steel block called a die. (Weed)

Stampsman. One who attends or operates a stamp or stamp battery.

Stamp-work (Lake Sup.). Rock containing disseminated native copper (Raymond). Stamp rock.

Stanch air (Som.). Choke damp. (Gresley)

Stanchion. A vertical prop or strut. (C. and M. M. P.)

Stand. In well drilling, three lengths of pipe ready for lowering into a well.

Standage (Eng.). A large sump, or more than one, acting as a reservoir. (Raymond)

Standard. 1. That which is set up and established by authority as a rule for the measure of quantity, weight, extent, value, etc. 2. The legal weight and fineness of metal used in coins. (Webster)
3. (Eng.) The fixed rate by which colliers' wages are from time to time regulated. *See* Sliding scale, 1. (Gresley)

Standard-air course (No. of Eng.). The quantity or supply of fresh air allowed to pass through each district or split. (Gresley)

Standard copper. Practically any brand of 96 per cent, or higher, fineness. (Skinner)

Standard gold (Eng.). Twenty-two parts of pure gold alloyed with two parts of copper or other metal. (Skinner)

Standard height (Aust.). A given height of seam, say 5 feet, below which the miner is paid so much extra for every inch short of the standard height. (Power)

Standard selling price (Aust.). An assumed price, not necessarily the actual selling price, adopted so as to afford a basis for a uniform mining rate. (Power)

Standard-white oil. A Russian kerosene which has a specific gravity of 0.808 to 0.812 and is standard white in color. (Bacon)

Stander (Eng.). A coal pillar left to support the roof. (Webster)

Standing. 1. A term used by well drillers to denote that work has been stopped for a considerable time. *See* Shut down. (Redwood, p. 245). Also applicable to mines and other industrial plants.
2. An iron floor covering the sunken part of a rolling mill. (Standard)

Standing bobby (No. of Eng.). An exploded shot that does not blow the stemming out, but expends itself in crevices or cleavage planes, without doing its work. (Gresley)

Standing fire. A fire in a mine continuing to smoulder for a long time; often many years. (Gresley)

Standing gas. A body of fire damp known to exist in a mine, but not in circulation; sometimes fenced off. (Steel)

Standing ground (Eng.). Ground that will stand firm without timbering. (Pryce)

Standing set (Eng.). A fixed lift of pumps in a sinking shaft. (Gresley)

Standing shot. The result of a small or undercharged shot wherein the coal is slightly loosened so that it is easily mined by pick (Hougland *v.* Avery Coal Mining Co., 246 Illinois, p. 616). The term is a misnomer, as it applies to the result and not the "shot" or "charge."

Standpipe. A high vertical pipe or reservoir for water used to secure uniform pressure in a supply system. (Webster)

Stane (Scot.). An obsolete form for stone. (Century)

Stanekite. A resinlike hydrocarbon derivative ($C_{20}H_{32}O_2$) found chiefly in coal deposits in Bohemia. (Standard)

Stank. (Mid.) A water-tight stopping; generally a brick wall. (Gresley)

Stanley header. *See* Header, 4.

Stannary. 1. A tin mine or tin works. (Raymond)
2. A region containing tin works. (Webster)

Stannary courts (Eng.). Courts in Cornwall and Devonshire for the purpose of regulating the affairs of tin mines and tin miners. (Century)

Stannary laws (Corn.). Regulations for the management, etc., of tin miners, administered by equity judges resident in Cornwall and Devon. (Min. Jour.)

Stannatores. An early name applied to Cornish tin miners. (Century)

Stanner. A small stone in or by a stream; a ridge of stones on the seashore; gravel. (Webster)

Stannic. Of, pertaining to, or containing tin; specifically designating compounds in which tin has a valence of four, as contrasted with *stannous*. (Webster)

Stanniferous. Yielding or containing tin, as *stanniferous* ores. (Standard)

Stanniferous ware. Pottery with a tin glaze. (Standard)

Stannite. A sulpho-stannate of copper, iron, and sometimes zinc. $Cu_2S.FeS.SnS_2$; 29.5 per cent copper, 27.5 per cent tin (Dana). Also called Tin pyrites.

Stannous. Pertaining to or containing tin; specifically, designating compounds in which tin has a valence of two, as contrasted with *stannic*. (Webster)

Stannum. Tin.

Staple. 1. (Eng.) A shaft, smaller and shorter than the principal one, joining different levels. 2. A small pit. (Webster). Used in coal mining. The American equivalent in metal mines is *winze*.
3. In founding, a piece of nail-iron pointed at one end and having a disk of sheet iron riveted to the other, used to steady a core and gage the thickness of the metal. (Standard)

Stapping (Scot.). A method of wedging down coal across the working face. (Barrowman)

Star antimony. Metallic antimony, the purity of which is evidenced on its surface by crystalline patterns resembling stars or fern leaves. (Webster)

Starling. 1. A structure of piles driven round the piers of a bridge for protection and support. Also Sterling (Webster). A sort of cofferdam.
2. One of the piles of such an inclosure. (Standard)

Star metal. Synonymous with Star antimony.

Star quartz. *See* Asteriated quartz.

Star reamer. A star-shaped tool for regulating the diameter of, or straightening a bore hole. (Gresley)

Star ruby. An asteriated variety of ruby. (Webster)

Star sapphire. An asteriated sapphire. (Standard)

Star stone. 1. A variety of ruby that exhibits a bright opalescent star of six rays in the direction of the principal axis. (Power)
2. An asteriated sapphire. 3. A cross-section of a petrified tree-fern when cut and polished. (Standard)

Start (No. of Eng.). A lever for working a gin to which the horse is attached. (Gresley)

Starter. 1. A drill used for making the upper part of a hole, the remainder of the hole being made with a drill of smaller gage known as a *follower*. (Bowles)
2. (Penn.) The miner who ascends to the battery to start the coal to run. (Chance)

Stassfurtite. A massive variety of boracite found in Prussia. It resembles a fine-grained white marble. (Century)

Static metamorphism. In geology, metamorphism produced by the internal heat of the earth and the weight of the superincumbent rocks and not accompanied by appreciable deformation. (La Forge) A term used in contradistinction to dynamic metamorphism which involves stresses principally due to thrust. (Sloan)

Statics. That branch of mechanics which treats of the equilibrium of forces, or relates to bodies as held at rest by the forces acting on them. (Webster)

Static zone. A term suggested for the zone which extends below the level of the lowest point of discharge, and in which the water is stagnant or moves with infinitesimal velocity. (Lindgren, p. 31.)

Station. 1. An enlargement of a shaft or gallery on any level, thus affording room for landing at any desired place, and at the same time provides space for receiving loaded mine cars that are to be sent to the surface. Empty cars and material to be used in the mine are taken from the cage at this place. Also, a similar enlargement of shaft or level to receive a balance-bob (bob-station), pump (pump-station), or tank (tank-station) (Raymond).
2. In surveying, the point at which the instrument is planted or observations are made. (Webster)
3. Any fixed point underground beyond which naked lights may not be carried. 4. Any fixed point in a mine where deputies or foremen meet to report upon the condition of their respective districts. 5. An opening into a level heading out of the side of an inclined plane. (Gresley)

Stationary motors. Motors installed in a permanent manner. (Clark)

Station pump. A mine pump permanently placed, as distinguished from a movable sinking-pump. (Weed)

Station tender. A cage tender.

Statuary marble. A pure white saccharoidal marble used for sculpture. The finest varieties are now brought from the Apuan Alps. (Merrill)

Staurolite. Iron-aluminum silicate, $Fe(A10)_4(A1,OH(SiO_4)_2$. Sometimes used as a gem (U. S. Geol. Surv.) Called also Granatite; Grenatite; Staurotide; Xantholite.

Stauroscope. A modified polariscope used to find the position of planes of light vibration in sections of crystals. (Webster)

Staurotypous. In mineralogy, having cross-like markings. (Standard)

Stave. A wedge-shaped section placed around the die of a stamp to take up the side wear. (Richards, p. 120)

Stay (Eng.). A prop, strut or tie for keeping anything in its place. (C. and M. M. P.)

Steady. A support for blocking up a stone that is to be worked. (Standard)

Steam. Water in the form of vapor; aqueous vapor; especially the gas into which water is changed by boiling; transparent until it begins to condense. (Standard)

Steamboat coal. In anthracite only, coal small enough to pass through bars set 6 to 8 inches apart, but too large to pass through bars from 3½ to 5 inches. Steamboat coal prepared at different colleries varies considerably in size. Comparatively few colleries prepare steamboat coal except to fill special contracts or orders. (Chance)

Steamboat rolls. Those rolls in an anthracite breaker which are set farthest apart to break the coal into steamboat coal. (Standard)

Steam coal. Coal suitable for use under steam boilers. (Webster)

Steam dredger. A dredging machine operated by steam. (Century)

Steam gas. Highly superheated steam. (Webster)

Steam jet. 1. A blast of steam issuing from a nozzle. (Century)

2. A system of ventilating a mine by means of a number of jets of steam at high pressure kept constantly blowing off from a series of pipes in the bottom of the upcast shaft. (Gresley)

Steam metal. Any copper alloy specially designed to endure exposure to steam. (Webster)

Steam navvy (Eng.). A steam shovel. (Webster)

Steam point. *See* Point, 5.

Steam shovel. An excavating machine in which a large scoop is operated by steam power (Standard). Used for stripping purposes and in open pit mining, especially for iron and coal. A similar shovel is now operated by electricity.

Steam stamp. A crushing machine consisting of a vertical stamp-shaft which is forced down to strike its blow, and lifted up preparatory to striking the next, by a steam piston. (Richards, p. 113)

Steatite; Soapstone. A massive variety of talc; a very soft rock having a soapy or greasy feel; it is a hydrous magnesium silicate.

Steatitic. Of or pertaining to steatite or soapstone; made of steatite. (Century)

Steel. Formerly, a variety of iron intermediate between cast-iron and wrought-iron, very tough, and, when tempered, hard and elastic; now applied also to ingot iron, or nearly pure iron made by fusion processes. Steel is conveniently classified into three grades of hardness for commercial purposes: *mild*, or *soft steel*, containing less than 0.15 per cent of carbon; *medium steel*, containing from 0.15 to 0.30 per cent of carbon; *hard steel*, containing more than 0.30 per cent of carbon. Soft steel is highly ductile and is used for boiler plates, etc. Medium steel is used especially for constructional purposes. Hard steel is employed for rubbing surface and where great ultimate strength is required, as for axles, shafts, tools, springs, etc. A very soft kind of mild steel, used especially for making rivets is called Rivet steel (Webster). *See also* Ferroalloy.

Steel band (Ill.). A thin band or layer of pyrite in a coal seam. Also called Sulphur; Brasses.

Steel boy. A boy who carries drills to the miners, and collects dull drills and sees that they are returned to the blacksmith shop.

Steel bronze. Same as Bronze steel. (Standard)

Steele; Steele dry table. *See* Sutton.

Steel iron. A mixture of iron and steel; imperfectly made steel. (Standard)

Steel jack. Sphalerite. (Power)

Steelmaster. A steel manufacturer. (Standard)

Steel mill. 1. A mill where steel is manufactured. (Webster)
2. (Eng.) An early type apparatus for obtaining light in a fiery mine. It consisted of a revolving steel wheel, to which a piece of flint was held, to produce sparks. *See* Flint mill. (Gresley)

Steel needle. An instrument used in preparing blasting holes, before the safety fuse was invented. (C. and M. M. P.)

Steel nipper. *See* Nipper, 1.

Steel ore. A name given to various iron ores and especially to siderite, because it was supposed to be especially adapted for making steel by the earlier and direct process. (Century). *See also* Stahlstein

Steel press. A hydraulic press for compressing or condensing molten steel in molds and thus producing dense ingots or castings. (Standard)

Steelworks. A plant where steel is made. (Standard)

Steening; Steining. The brick, or stone lining of a shaft. (Gresley)

Steep. *See* Brasque.

Steep seams. *See* Edge coal; *also* Rearers. (Gresley)

Steer (Leic.). Steep; highly inclined; dips fast. (Gresley)

Steg the cleek (Scot.). To retard or stop the winding; to stop the work. (Barrowman)

Steigher (Pr.). *See* Fireman. One who has the supervision of only a fixed part or district of a mine. (Gresley)

Steining. The brick or stone lining of a shaft to prevent the loose strata of the sides from falling. (Gresley)

Steinmannite. A variety of galena that has part of the lead replaced with antimony and arsenic. (Standard)

Stellar coal. *See* Stellarite.

Stellarite. A variety of asphaltum, called also Stellar coal, because stars of fire drop from it when burning. (Chester)

Stellated. Resembling a star; pointed or radiated like a star (Webster). Frequently applied to minerals.

Stellite. An alloy of cobalt and chromium in which the constituents may vary from 10 to 50 per cent chromium with a corresponding variation in cobalt. (Min. and Sci. Press, vol. 115, p. 651)

Stem. 1. The vertical rod or shaft of wrought iron which carries the stamp at its lower end. Also called Shank. 2. The handle of the hammer. (Raymond)
3. The heavy iron rod to which the bit is attached in deep drilling by the rope method. (Steel)
4. Frequently used as a synonym for Tamp. *See* Stemming.
5. (Corn.) A day's work. (Min. Jour.) Also Stemmyn.

Stemmer. 1. (Newc.) A tamping bar. (Raymond)
2. A blasting needle. (Standard)

Stemming. A term applied in mining literature to the inert material used on top of a charge of powder or dynamite, while *tamping* is reserved to indicate only the process of compressing the stemming in place. *See* Tamping. (U. S. Bu. Mines, Bull. 17, p. 45)

Stemmyn (Corn.). *See* Stem, 5.

Stempel; Stemple. 1. (Derb.). One of the cross-bars of wood placed in a mine-shaft to serve as steps. 2. A stull-piece. 3. A cap, both sides of which are hitched instead of being supported upon legs. *See* Stull. (Raymond). Also spelled Stimple.

Stemple. *See* Stempel.

Stence (Eng.). Timber for supporting a roof. (Bainbridge)

Stencil. A substance laid on parts of the surface of a piece of pottery which is to be decorated by the transfer process, to keep the oil used from adhering to those parts; hence, the pattern made by such material. (Standard)

Stent. 1. (Eng.) Rubble, waste. (Power)
2. Extent or limit, as of a pitch or bargain (Standard). *See* Pitch, 1.

Stenting (No. of Eng.). *See* Stenton.

Stenton (Newc.). A passage between two winning headways. A stenton wall is the pillar of coal between them (Raymond). Also called Stenting.

Stenton wall (Newc.). The pillar of coal between two working headings. (Min. Jour.)

Step. 1. (Eng.) The cavity in a piece for receiving the pivot of an upright shaft or the end of an upright piece.
2. The shearing in a coal face. (C. and M. M. P.)
3. (Scot.) A hitch or dislocation of the strata. (Barrowman)

Step banks (So. Wales). Working places at regular distances along the face of the long-wall system. (Gresley)

Step-cut. A mode of cutting gems in step-like facets. (Standard)

Step fault. A series of parallel faults forming steps (Power). *See* Fault.

Step grate. A grate made in steps or stairs, to promote completeness of the combustion of the coal burned upon it. (Raymond)

Stephanite; Brittle silver ore. Silver-antimony sulphide, $5Ag_2S.Sb_2S_3$. Contains 68.5 per cent silver. (U. S. Geol. Surv.)

Stepping (No. of Eng.). The system of working a face of coal in advance of the one next to it. (Gresley)

Step reef. *See* Step vein.

Step socket. A special form of socket for use on locked-wire rope. (C. M. P.)

Steptoe. An island of bedrock in a lava flow. (Lahee, p. 322)

Step-up. 1. *See* Transformer. 2. Designating a gear or gearing that increases a velocity ratio. (Webster)

Step vein. A vein alternately cutting through the strata of country-rock, and running parallel with them (Raymond). Called Step reef in Australia.

Stercorite. Microcosmic salt, $HNa(NH_4)PO_4+4H_2O$. Native salt of phosphorous. (Dana)

Stereogram. A stereographic projection of a crystal. (A. F. Rogers)

Stereographic projection. In mineralogy, a projection made on a plane through the center of a sphere by projectors from the south pole. (A. F. Rogers)

Stereotype metal. An alloy resembling type metal, but containing more lead, suitable for stereotype plates. (Standard)

Sterile coal (Eng.). Black shale or clay on top of a coal seam. (Gresley)

Sterlie (Scot.). A drum or wheel on a self-acting incline. (Barrowman)

Sterling. Having a standard of value or fineness established by the British government; said of British money of account and of gold and silver; as, pounds *sterling; sterling* plate. (Standard)

Sternbergite. A silver-iron sulphide, $Ag_2S.Fe_4S_5$. Sulphur 30.4, silver 34.2, iron 35.4. (Dana)

Sterny (Scot.). Rough; coarse grained or crystalline, *e. g.*, sterny limestone. (Barrowman)

Sterro metal. An alloy of copper 3 parts, zinc 2, and a small proportion of iron and tin; stronger than gun metal. (Standard)

Stetefeldite. A somewhat uncertain compound containing silver, copper, iron, antimony, sulphur, and water. (U. S. Geol. Surv.)

Stetefeldt furnace. A furnace for the chloridizing-roasting of silver ores and also for roasting fine copper ores low in sulphur. Provision is made for an auxiliary fireplace. (Peters, p. 173)

Steward (York.). An underground foreman. (Gresley)

Stey (Scot.). Steep; highly inclined. (Barrowman)

Stibiconite. Antimony ocher. Hydrous oxide of antimony, $Sb_2O_4.H_2O$. Contains 74.5 per cent antimony (U. S. Geol. Surv.). Called also Stiblite.

Stibium. Antimony: so called in pharmacy and old chemistry. (Standard)

Stibnite. Antimony glance; gray antimony; antimony sulphide, Sb_2S_3. Contains 71.4 per cent antimony. (U. S. Geol. Surv.)

Stick (Eng.). To cease work in order to obtain an increase, or prevent a reduction of wages (G. C. Greenwell). To strike.

Stickings (Eng.). Thin veins of ore, or thin seams of clay in ore veins. (Bainbridge)

Sticking scrins (Eng.). Small veins that do not afford shoulder room. (Hunt)

Sticky coal (Ark.). Coal strongly adhering to a hard stratum of rock above or below it; also called Frozen coal. (Steel)

Stiffener (So. Wales). A door for regulating the ventilation. (Gresley)

Stiff-mud process. A plastic method of molding brick by forcing the clay through a die. (Ries)

Stifle. 1. (Scot.) Noxious gas resulting from an underground fire. (Barrowman)
2. To suffer difficulty in breathing, or to be oppressed, as by reason of air charged with smoke or other impurities. (Webster)

Stilbite; Desmine. A common mineral of the zeolite group; a hydrous silicate of aluminum, calcium, and sodium. (Dana)

Still. 1. An apparatus in which a substance is changed by heat, with or without chemical decomposition, into vapor, which vapor is then liquefied in a condenser and collected in another part of the apparatus. (Standard) A retort.
2. A house where liquids are distilled. 3. A vessel in which manganese dioxide is treated with hydrochloric acid to form a bleaching liquor. (Webster)

Still coke. The residue left in the still on distilling crude shale-oil to dryness. (Bacon)

Still grease. The amorphous distillate from the end of the crude-oil and heavy-oil distillation in the shale-oil industry. (Bacon)

Stillen (Corn.). *See* Astyllen.

Stilling. 1. (No. of Eng.) The walling of a shaft within the tubbing above the first hard stratum underlying quicksand. (Gresley)
2. A stand, as for holding vats or casks, or for unburned pottery while it is drying. (Standard)

Stilpnosiderite. Same as Limonite. (Standard)

Stilt. 1. In ceramics, a piece of hard, fired clay, or of iron, used to keep articles apart in a kiln; also called Spur. 2. Any of the piles forming the back of the sheet piling for a starling. (Webster)

Stimples (So. Wales). Small timbers. *See* Lacing; *also* Stempel.

Stink coal. A hydrocarbon mineral found in lignite. *See* Dysodile.

Stink damp. Sulphuretted hydrogen, H_2S.

Stinkquartz. A variety of quartz, which emits a fetid odor when struck. (Chester)

Stinkstone. 1. A fetid limestone. 2. (Tenn.) Bowlders of phosphate rock. (Power)
3. Any stone which emits a fetid smell on being struck or rubbed, owing to the decomposition of organic matter; specifically, anthraconite (Webster). Called also Swinestone. *See* Bituminous limestone.

Stint. 1. (Mid.) A measure of length by which colliers mine coal. 2. (Glouc.) A certain number of trams filled per man per day. 3. (So. Staff.) A collier's day or shift.

4. (Brist.) To fix upon, or agree to, a certain number of trams being filled per stall per day. (Gresley)
5. (Aust.) The amount of work to be done by a man in a given time. (Power)

Stirian. An early name for nickel-bearing marcasite. (Chester)

Stirrup (Eng.). A screw joint suspended from the brakestaff or spring-pole, by which the boring rods are adjusted to the depth of the borehole (Gresley). Also called Temper screw.

Stitch. To fasten a timber by toe nailing. (C. and M. M. P.)

Stithe (Eng.). Choke damp; after damp; black damp. *Also* Stythe. (Century)

Stob (Eng.). A long steel wedge used in bringing down coal after it has been holed. (Gresley)

Stob-and-feather (Eng.). *See* Fox wedge.

Stock. 1. (Eng.) Coal (or ore) stored at surface during slack trade, or in reserve for an extra demand at any time. 2. The average tonnage sent out of a working place in one day. (Gresley)
3. In quarrying, the useful rock as distinguished from the waste. (Gillette, p. 7)
4. The mixture of ore, coke, and limestone charged into the furnace, or stored in bins at the stock house. (Willcox)
5. An irregular, metalliferous mass in a rock formation; as a stock of lead ore in limestone. 6. A body of igneous rock intruded upward into older formations. In ground plan a stock is circular or elliptical, but in cross section it may increase downward. 7. A core of small wet coal, with a hole through for the air blast, made between the tuyère and the front of a forge. 8. A holder for a threaded die. 9. The capital of a company or corporation in the form of transferable shares, each of a certain amount. (Webster)
10. A grade of bricks; in England, a gray or red brick for an exterior wall. (Standard)

Stock brick; Kiln-run brick. A class of bricks embracing all hard enough for the outside of buildings, divided into *hard, common building, paving, hard building, outside, hard red, strictly hard, select hard, rough hard, hard washed, kiln-run hard,* and *common hard brick.* (Standard)

Stock dumper. *See* Trestle man.

Stock-house man. A general term for anyone working in stock house. (Willcox) *See* Stock, 4.

Stocking end. 1. (Lanc.) The inner end of a heading at a short distance from which there is a depression in the seam, which has become more or less filled with water, causing the ventilation to be cut off. 2. (Leic.) A Geordie. (Gresley)

Stock-pile. The ore accumulated at the surface when shipping is suspended (Standard), as on the Iron ranges of Michigan and Minnesota during the winter months.

Stock unloader. A laborer who unloads ore, coke, or stone from cars on trestle. (Willcox)

Stockwork (Germ., Stockwerk). An ore deposit of such a form that it is worked in floors or stories. It may be a solid mass of ore, or a rock mass so interpenetrated by small veins of ore that the whole must be mined together. Stockworks are distinguished from tabular or sheet-deposit (veins, beds), which have a small thickness in comparison with their extension in the main plane of the deposit (that is, in strike and dip) (Raymond). *See* Stock, 5 and 6.

Stoke hole. A hole, as in a reverberatory furnace, for introducing a rabble or other tool for stirring. (Standard)

Stolzite. A native lead tungstate, $PbWO_4$, near scheelite in form. (Webster)

Stomp. 1. (Mid.) To set a prop or sprag with one end in a slight hole cut out of the floor or roof to receive it. 2. A short wooden plug fixed in the roof, to which lines are hung, or to serve as a bench mark for surveys. (Gresley)

Stone. 1. Concreted earthy or mineral matter. A small piece of rock. Rock or rocklike material for building. Large natural masses of stone are generally called rocks; small or quarried masses are called stones; and the finer kinds, gravel or sand.
2. A precious stone; a gem. (Webster)
3. (Eng.). Ironstone, *which see* (Gresley)

4. (Aust.) Ore sent to mill. (The Englishman uses the term "mill-stuff" and the Colorado-Cornishman "mill-dirt.") In southwest Missouri lead and zinc mines the term "dirt" is used, while in Michigan copper mines "rock" is the common expression. (Rickard)

Stone ax. A stone-cutter's ax. (Standard)

Stone bind. A variety of sandstone. (Power)

Stone boat. 1. A flat runnerless sledge or drag for transporting stone or other heavy material. (Webster)
2. A wheeled vehicle having slung below the axles a platform for hauling stones. (Standard)

Stone brash. Land abounding in stones, especially a subsoil of small stones or finely broken rock. (Webster)

Stone breaker. A stone crusher.

Stone brick. A hard brick or fire brick made in Wales. (Webster)

Stone butter. 1. A variety of halotrichite. Called also Rock butter. (Standard) A sort of alum.
2. A kind of clay said to have been used instead of butter. (Chester)

Stone coal (Wales). 1. Anthracite, in lumps. Also certain other very hard varieties of coal. (Gresley)
2. Mineral coal, as distinguished from charcoal. (Standard)

Stone crusher. A machine for breaking stones, as for road building. When used for breaking ore, called Ore crusher. (Standard)

Stone cutter. 1. One whose occupation is cutting stone, as for building. 2. A gem cutter. 3. A machine for facing stone. (Standard)

Stone dresser. 1. One who smooths and shapes stone. 2. A machine for dressing and finishing building stones, etc. (Standard)

Stone drift (Aust.). A passage driven in rock instead of coal. (Power)

Stone flax. An early name for asbestos. (Chester)

Stonegall. A clay concretion found in certain sandstones. (Standard)

Stone hammer. A hammer for breaking or for dressing stone. (Standard)

Stonehead (Eng.). 1. A heading driven in stone or bind. A stone drift. 2. (No. of Eng.) The first hard stratum underlying quicksand. (Gresley)

Stone land. Land chiefly valuable for stone, as sandstone, limestone, granite, etc. (U. S. Min. Stat., pp. 1308–1333)

Stoneman. 1. (No. of Eng.) One who is employed in driving a stonehead, or who rips, timbers, and repairs roads. *See* Brusher. (Gresley)
2. (Aust.). A man who works in rock, in contradistinction to one who works in coal. (Power)

Stone mill. 1. A stone crusher. 2. A machine for dressing and finishing marble, slate, etc.; a stone dresser. (Standard)

Stone mine. 1. (Scot.) An ironstone mine or working. (Gresley))
2. (Scot.). A mine driven in barren strata. (Barrowman)

Stone ocher. Ocher found in hard, globular masses. (Webster)

Stone of ore. A piece of ore. (Roy. Com.)

Stone oil. Rock oil; petroleum. (Webster)

Stone pit. A quarry where stones are dug. (Webster)

Stone pitch. Pitch that is hard like stone. (Webster)

Stone quarry. A place where stone is quarried. (Standard)

Stone saw. A stone-cutting apparatus having no teeth, being a simple iron band fed with sand and water, cutting by attrition. (Standard)

Stone squarer. A workman who squares or shapes stones, as for building. (Standard)

Stone tubbing. Water-tight stone walling of a shaft cemented at the back. (C. and M. M. P.)

Stoneware. A variety of pottery. (Standard)

Stonework. 1. Any work directly concerned with the shaping, preparation, setting, or the like, of a stone or stones. (Webster)
2. (Scot.) Driving of drifts or galleries in stone or rock. *See* Stonehead, 1. (Gresley)

Stone works. 1. An establishment for cutting stone, as marble. 2. A pottery for making stoneware. (Standard)

Stone yard. A yard in which stones are cut, shaped, broken or the like. (Webster)

Stone yellow. Yellow ocher. (Webster)

Stook (No. of Eng.). A pillar of coal about four yards square. being the last portion of a full-sized pillar to be worked away in bord-and-pillar workings. (Gresley)

Stook-and-feather (Eng.). A wedge for breaking down coal, worked by hydraulic power, the pressure being applied at the extreme inner end of the drilled hole. (Gresley)

Stooled (Eng.). Applied to a vein cut vertically for some distance. (Bainbridge)

Stool end. A supporting pillar of rock. (Webster)

Stool pipe; Stool piece (Scot.). The pipe on which a column of pipes rests. (Barrowman)

Stoop (Scot.). A post or pillar; a boundry post; a support or prop, as a pillar of coal left to support the roof. (Webster)

Stoop and room; Pillar and stall; or Post and stall (Scot.). A system of working by which mineral is extracted from its bed in a series of galleries or rooms leaving pillars or stoops to support the roof. (Barrowman)

Stoop and thirl (Scot.). An old name for Stoop and room. (Barrowman)

Stooped (Scot.). Said of a mine when the pillars or stoops have been extracted. (Barrowman)

Stooped waste (Scot.). Stoop-and-room workings where the pillars have been worked out. (Barrowman)

Stooping (Scot.). The process of extracting stoops or pillars. (Barrowman)

Stoop road (Scot.). A road driven in the solid coal in connection with the stoop-and-room system of mining. (Gresley)

Stop. 1. Any cleat or beam to check the descent of a cage, car, pump rods, etc. (Chance)
2. In mining, a variation of stope.

Stope. 1. An excavation from which the ore has been extracted, either above or below a level, in a series of steps. A variation of step (Standard). Usually applied to highly inclined or vertical veins. Frequently used incorrectly as a synonym of room, which is a wide working place in a flat mine.
2. To excavate ore in a vein by driving horizontally upon it a series of workings, one immediately over the other, or *vice versa*. Each horizontal working is called a stope (probably a corruption of step), because when a number of them are in progress, each working face being a little in advance of the next above or below, the whole face under attack assumes the shape of a flight of stairs. When the first stope is begun at a lower corner of the body of ore to be removed, and, after it has advanced a convenient distance, the next is commenced above it, and so on the process is called *overhand* stoping. When the first stope begins at an upper corner, and the succeeding ones are below it, it is *underhand* stoping. The term stoping is loosely applied to any subterranean extraction of ore except that which is incidentally performed in sinking shafts, driving levels, etc., for the purpose of opening the mine. (Raymond)

Stoper. A stoping drill.

Stoping. 1. In geology, the enlargement of a magmatic chamber through the breaking off of blocks of rock from the walls and roof: one of the processes by which large bodies of intrusive igneous rock are supposed to acquire the space which they occupy upon solidification. (La Forge)
2. *See* Stope, 2.

Stoping and filling. *See* Overhand stoping.

Stoping drill. A small air or electric drill, usually mounted on an extensible column, for working stopes, raises, and narrow workings.

Stoping ground. Part of an orebody opened by drifts and raises and ready for breaking down. (Weed)

Stoping in horizontal layers. *See* Overhand stoping.

Stoping underhand. Mining a stope downward in such a series that presents the appearance of a flight of steps. (Ihlseng)

Stop-off. 1. To close off a part of a mine by means of a brattice, wall, stopping, etc.
2. In founding, to fill part of a mold with sand or earth, to prevent access of molten metal to that part. (Standard)

Stoppages (Eng.). Deductions from miners' wages, such as rent, candles, blacksmith's work, field club, etc. (Gresley)

Stopper hole. In a puddling furnace, the hole through which the rabble is introduced. (Webster)

Stopping. A brattice, or more commonly, a masonry or brick wall built across old headings, chutes, airways, etc., to confine the ventilating current to certain passages, and also to lock up the gas in old workings, and in some cases to smother a mine fire. (Chance)

Storage battery. A combination of secondary cells or accumulators which when once charged may be used for a considerable time after as a source of electric current. (Century) There are a number of types and makes. Large ones find use in operating mine-haulage motors, while a portable type is used in the electric safety lamp.

Storage battery locomotive (or motor). A mine haulage-motor operated by self-contained storage batteries.

Stoss. In geology, facing the direction whence a glacier moves, as a rock or hill in its track; as, the *stoss* side of a crag; contrasted with *lee*. (Standard)

Stove. 1. The oven in which the blast of a furnace is heated. (Raymond) 2. A kiln, as for firing pottery or drying minerals. (Webster)

Stove coal. In anthracite only; two sizes of stove coal are made—Large and Small. *Large Stove*, known as No. 3, passes *through* a 2¼ inch mesh and *over* a 1⅞ inch to 1½ inch mesh; *Small Stove*, known as No. 4, passes *through* a 1⅞ inch to 1⅝ inch mesh and *over* a 1⅛ inch to 1 inch mesh. (Chance)

Stove distillate. A stove gasoline before receiving a finishing treatment. (Bacon)

Stove gasoline. Gasoline used for gasoline stoves and for making illuminating gas. (Bacon)

Stove glass. Mica for use in stoves. (Standard)

Stove pipe. Riveted well casing. (Redwood)

Stove tender; Hot-blast man. One who puts stoves on gas or on blast, regulates temperatures of blast; handles gas at shutdowns; usually watches water from tuyères, plates, etc., at iron blast-furnaces. (Willcox)

Stow. 1. To pack away rubbish into goaves or old workings. (Steel) 2. (Prov. Eng.) The structure containing the furnace and series of pots used in tin plating. (Standard)

Stower (Aust.). One who stows away waste in old workings. (Power)

Stowage (Scot.). In longwall mining the space from which the mineral has been extracted and which has been filled with waste. (Barrowman)

Stowbord (Newc.). A place into which rubbish is put (Raymond). *Also* Stowboard.

Stowce. 1. A windlass. 2. (Derb.) A wooden landmark, placed to indicate possession of mining ground (Raymond). *Also* Stowse.

Stowing. A method of mining in which all the material of the vein is removed and the waste is packed into the space left by the working. (Raymond)

Stow road (Scot.). An abandoned road in which waste is stowed. (Barrowman)

Stowse (No. of Eng.). A windlass (Gresley). *Also* Stowce.

Straddle. A vertical mine-timber, especially one supporting a set in a shaft.

Straddle pipe. In gas manufacture, a bridge pipe connecting the retort with the hydraulic main. (Century)

Strahlite. Same as Actinolite. Also spelled Stralite. (Standard)

Straight bit (Eng.). A flat or ordinary chisel for boring. (Gresley)

Straight coal (So. Staff.). An excavation made in thick coal, having the solid coal left on three sides of it (Gresley). Also called Straight stall.

Straight-cut gang frame. In quarrying, a saw gang which slides back and forth on a bed, as contrasted with the ordinary saw gang which swings back and forth when suspended from above. (Bowles)

Straight dynamite. A high explosive consisting essentially of 20 to 60 per cent nitroglycerin and an active base or absorbent. (Du Pont)

Straight-ends-and-walls (No. Wales). A system of working coal somewhat similar to bord-and-pillar. (Gresley)

Straightening press. A power-press to straighten iron and steel bars, such as rails, shafting, etc. (Raymond)

Straight point (Aust.). That straight portion of the inner main rail between the rails of a turn-out. (Power)

Straight stall. A lateral excavation into a thick seam, having coal on the face and both sides (Standard). Also called Straight coal.

Straight-work; Strait-work (Eng.). The system of mining coal by headings or narrow work. (Gresley)

Strain. A change of shape produced in a body. (Stress and strain are often used incorrectly as synonymous terms). (C. M. P.)

Strain breaks. Fractures occurring in rock quarries where the rock is under compressive stress. This stress is relieved locally in the process of quarrying, resulting in the rending or fracturing of the rock mass. (Bowles)

Strain sheet. 1. A skeleton drawing of a structure, as a roof truss or a bridge, showing the stress to which each member will be subjected. (Webster)
2. A quarryman's term for granite sheets produced by compressive strain. (Perkins)

Strait (Scot.). Narrow; in the solid (Barrowman). *See* Straight-work.

Straits tin. Tin from the Strait of Malacca and the islands of Banka and Billiton, Dutch East Indies.

Strake. 1. (Corn.) A trough for washing broken ore, gravel, or sand. A launder. (Webster)
2. The place where ore is assorted on the floor of a mine; a dressing floor. (Standard)

Strand. A varying number of wires or fibers twisted together; the strands in turn are twisted together, forming a rope. (C. M. P.)

Strap. 1. (Scot.). A plank supported at each end to make the roof strata secure. (Barrowman)
2. (Mid.) An old iron rail put up between the coal face and the front row of props, in longwall stalls, for supporting a weak roof. (Gresley)

Strapping plate (Corn.). One of the wrought-iron plates by which the spears of a pump rod are bolted together; a spear plate. (Century)

Strap rope (Aust.). An endless rope that transmits power from the surface into the clutch room underground, where the various district ropes are thrown into gear. (Power)

Strata. Plural of *stratum*.

Strath. 1. A broad valley, as distinguished from a glen or gorge; it may not be the valley of a single stream.
2. A broad valley with a planated floor which is a local or incipient peneplain. (La Forge)

Strath stage. That stage in the peneplanation of a region when the main streams have carved broad valleys with planated floors graded to the same regional base level. (La Forge)

Stratic. Of, pertaining to, or designating the order or sequence of strata; strategraphic. (Webster)

Straticulate. Having numerous thin layers, either (1) of sedimentary deposition, as by oscillation or wave-motion, often somewhat oblique to the main layers of stratification, or (2) of deposition from solution, the layers being often those of color or structure and not of fissility, as in banded agate. (Standard)

Stratification. The deposition of sediment beds, layers, or strata; hence, the arrangement of rocks in such beds, layers, or strata; hence, further, the stratified structure resulting from such deposition and arrangement. (La Forge)

Stratification-foliation. The segregation of certain minerals in thin, irregular, discontinuous laminæ, in planes parallel to the bedding or stratification. (Standard)

Stratification planes. Continuous divisional planes of great extent, marking changes in the character of material or the mode of deposition, and the presence of fossils generally arranged in planes parallel to the plane of deposition and with their broader surfaces lying in the same planes. (Standard)

Stratified. Formed or lying in beds, layers, or strata. (La Forge)

Stratigrapher. One who studies, or who has expert knowledge of, stratigraphy. (Webster)

Stratigraphic geology. *See* Geology.

Stratigraphic throw. The distance between the two parts of a disrupted stratum measured at right angles to the plane of the stratum. (Lindgren, p. 129)

Stratigraphy. 1. That branch of geology which treats of the formation, composition, sequence, and correlation of the stratified rocks as parts of the earth's crust. 2. That part of the descriptive geology of an area or district which pertains to the discrimination, character, thickness, sequence, age, and correlation of the rocks of the district. (La Forge)

Stratum. A bed or layer of rock; *strata*, more than one layer. (Roy. Com.)

Stratum plain. A plain that has been reduced approximately to the surface of a level or nearly level resistant stratum which has served as a local base level. (La Forge)

Straw (Eng.). A straw or reed filled with gunpowder, and used as a fuse. (Gresley)

Streak. The color of the powder of a mineral as obtained by scratching the surface of the mineral with a knife or file or, if not too hard, by rubbing it on an unpolished porcelain surface. (Dana)

Streaked. Having some of the mineral constituents so arranged as to give the rock a striped or streaked appearance. In the eruptive rock this structure is often produced by the flowing of the mass in a partially cooled condition. It is best seen in obsidian, rhyolite, and quartz porphyries. (Merrill)

Streak plate. A piece of unglazed porcelain for testing the streak of minerals.

Stream (Corn.). To separate or clean ore by washing.

Stream-down sluice. A sluice box placed to receive the material rejected from the tables of a dredge. (Weatherbe)

Streamer. 1. (Corn.) A searcher for stream tin. (Raymond)
2. One who washes out stream tin. (Webster)

Stream gold. Gold in alluvial deposits; placer gold. (Webster)

Streaming. 1. Separating ore from gravel by the aid of running water. (Skinner)
2. The working of alluvial deposits for the tin found in them. 3. The washing of tin ore from the detrital materials. 4. The reduction of stream tin. (Standard)

Stream tin. Tin ore (cassiterite) occurring in stream beds; distinguished from Lode tin. (Skinner)

Stream wheel. A wheel used to measure the velocity of flowing water in which it dips. (Webster)

Stream works. 1. (Corn.). A name given by miners to alluvial tin deposits usually worked in the open air. (Ure)
2. A place where ore, generally tin ore, is washed from alluvial deposits. (Standard)

Strebbau (Ger.). The longwall system of coal mining. (Gresley)

Streck (Eng.). A signal word for the whim or tackle to be lowered. (Hunt) *Compare* Strick.

Strek (Corn.). A trough for washing tin ore (Davies). A variation of strake.

Stress. A force or combination of forces tending to change the shape of a body. (C. M. P.)

Stret. 1. (Mid.) Solid, close, compact; as gobbed stret, packed stret, etc. (Gresley)
2. The system of mining coal by headings or narrow work. *See* Bord-and-pillar. (C. and M. M. P.). Also spelled Strett.

Stretch. A particular direction or course; as, the *stretch* of a coal seam. (Standard)

Stretcher. 1. A brick or stone laid with its length parallel to the face of the wall. (Ries)
2. (York.) A prop or sprag.

Stretcher bar. A single-screw column capable of holding one machine drill; is used in small drifts. (Gillette, p. 96)

Stretcher bond. A form of bond in which the bricks or ashlar are laid lengthwise in successive courses, so that the joints of one course are at the middle of those of the adjacent courses. (Standard)

Stria. A minute groove or channel. A threadlike line or narrow band (Webster). *See* Glacial stria.

Striated. Marked with parallel grooves or striæ. (Raymond)

Striations. 1. Very fine parallel lines marking the surfaces or cleavage faces of minerals. (George)
2. Channels or scratches made in rock-scoring. (Standard)

Strick (Corn.). To let a man down a shaft by a windlass. (Davies) *Compare* Streck.

Striding level. A spirit-level, the frame of which carries at its two extremities inverted Y's below, so that it may be placed upon two concentric cylinders and straddle any small intervening obstacles. (Century)

Strike. 1. The course or bearing of the outcrop of an inclined bed or structure on a level surface; the direction or bearing of a horizontal line in the plane of an inclined stratum, joint, fault, cleavage plane, or other structural plane: it is perpendicular to the direction of the dip. (La Forge) *Compare* Trend.
2. To find a vein of ore; a valuable discovery. 3. In iron-working, a puddler's rabble. 4. Act of quitting work by mutual understanding by a body of workmen as a means of enforcing compliance with demands on their employer; a stopping of work by workmen to obtain or resist a change in conditions of employment. *Compare* Lockout. (Webster)
5. A hoisting-hook for metal, in a foundry. 6. A straight-edged implement for leveling something as clay in a brickmaker's or potter's mold, or sand in a founders' mold, by scraping off the superfluous portion on top; a strickle. 7. In masonry, to wipe off the projecting fresh mortar from (a joint). (Standard)

Strike a lead. To come upon or discover a lead, lode, or vein, as of ore (Standard). *See* Strike, 2.

Strike board; Strike tree (Scot.). A board at the top of a shaft from which the bucket is tipped; used in shaft sinking. Formerly the beam or plank at the shaft-top on which the baskets were landed. (Barrowman.)

Strike cut. In separating blocks of stone in a quarry, the cut that is parallel to the strike of the rock strata. (Bowles)

Strike fault. *See* Fault.

Strike joint. A joint parallel to the strike. (Gresley)

Striker. 1. A blacksmith's helper. 2. A workman who dresses off the clay bricks with a strickle in molding. (Webster)
3. (Derb.) The man who lands the kibble, corf or bucket at the top of a shaft. (Mander) *See* Strike board.

Striker-off. In brickmaking, a striker or capper. (Standard)

Strike-shift. The horizontal component of the shift parallel to the fault strike. (Lindgren, p. 122)

Strike-slip. The component of the slip parallel with the fault-strike, or the projection of the net slip on a horizontal line in the fault surface. (Lindgren, p. 121)

Strike-slip fault. *See* Fault.

Strike tree. *See* Strike board.

Strike valley. A valley parallel to the strike of associated rock beds. (Webster)

Striking deals (Eng.). Planks fixed in a sloping direction just within the mouth of a shaft, to guide the bucket to the surface. (Gresley)

Striking hammer. A quarryman's (or miner's) hammer for striking a rock drill. (Standard)

Striking house (Derb.). A sheltered place at the top of a shaft for the striker, or cager. *See* Striker, 3. (Mander)

Striking solution. A dilute solution of silver cyanide, containing potassium cyanide, in which articles to be silver plated are dipped before being immersed in the silver bath proper. (Standard)

String. 1. A very small vein, either independent or occurring as a branch of a larger vein (Roy. Com.). A stringer.
2. A series of well-drilling tools arranged for lowering into the hole.

Stringer. 1. A narrow vein or irregular filament of mineral traversing a rock mass of different material. (Webster)
2. A heavy timber or plank, usually horizontal, but sometimes inclined, supporting other members of a structure, and usually running in the direction of the greatest length of the collection of supported members. (Standard)

Stringer lode. A shattered zone containing a network of small nonpersistent veins (Lindgren, p. 145). Also called Stringer zone.

Stringing deals (Eng.). Thin planks, nailed to the inside of the curbs in a shaft, so as to suspend each curb from those above it. (Raymond)

String pump. A system of pumping whereby the motion of the engine is transmitted to the pump by timbers or stringers bolted together. (C. and M. M. P.)

String rods. A line of surface rods connected rigidly for the transmission of power; used for operating small pumps in adjoining shafts from a central station. (C. and M. M. P.)

Strip. 1. To remove from a quarry, or other open working, the overlying earth and disintegrated or barren surface rock. (Raymond)
2. A shallow cast ingot of brass for rolling into sheets. 3. To remove the mold from a steel ingot. (Webster)
4. To mine coal, alongside a fault, or barrier. (Gresley)
5. One of a set of troughs, or their equivalent, along which ore particles, as they come from the stamps, are deposited in the order of their specific gravity. (Standard)

Stripe. 1. (Corn.) A long, rectangular buddle. (Webster)
2. The series of bands of variation in color or texture in a rock mass, or the course of the planes of such bands, as indicative of the course of the bedding plane when that is otherwise obscure. (Standard)

Stripping. 1. An open-pit working. 2. *See* Strip, 1. 3. The earth, rock, or soil so removed. (Chance)
4. (York.) A web or portion of coal worked off all along the face of a stall. Gresley) *See* Strip, 4.

Stripping a gutter. Removing the headings from off the wash dirt, which is left undisturbed. (Duryee)

Stripping a jig (Aust.). The forming of a jig, by enlarging a cut-through on an incline (Power). *See* Jig, 8.

Stripping a mine. 1. *See* Strip, 1. 2. Robbing a mine of its best ore.

Stripping a shaft. 1. Taking out the timber from an abandoned shaft. 2. Trimming or squaring the sides of a shaft. (Duryee)

Stripping system. The removal of the overburden and mining of the ore in one or more benches, the ore face being broken by blasting and the broken ore loaded by hand, shoveling machine, or steam shovel. The name "terrace or bench open-pit working" has been suggested. (Young)

Strip-pit. A coal or other mine worked by stripping (Steel). An open-pit mine.

Strockle. In glass manufacturing, a shovel with a turned-up edge, for grit, sand, etc. (Webster)

Stroke. In masonry, to give a finely fluted surface to. (Webster)

Stromatology. The history of the successive formations of the stratified rocks, including their fossils. (Standard)

Stromeyerite. A somewhat variable sulphide of silver and copper $(Ag,Cu)_2S$. Contains 50.2 to 52.7 per cent silver and 30.5 to 33.7 per cent copper. (U. S. Geol. Surv.)

Strong. 1. Large; important; said of veins, dikes, etc. (Webster)
2. (Scot.) Hard, not easily broken, *e. g.*, strong coal, strong blaes. (Barrowman)
3. Referring to the character of bind, meaning that the argillaceous is largely mixed with the arenaceous or siliceous material. (Gresley)

Strong lode. A large persistent lode. At Alston moor, applied to lodes lying in a fault plane in which the difference of level between similar strata is considerable. (Power)

Strontia. The monoxide of strontium, SrO, an alkaline earth which when pure is an infusible grayish white powder having an acrid, burning taste. (Century)

Strontianiferous. Containing or yielding strontium or its salts. (Standard)

Strontianite. Strontium carbonate, $SrCO_3$. (U. S. Geol. Surv.)

Strontium. A bivalent metallic element of the calcium group. In nature, always combined, chiefly in strontianite (carbonate) and celestite (sulphate). When pure it is silver-white. Symbol, Sr.; atomic weight, 87.6; specific gravity, 2.5. (Webster)

Stroup (Scot.). A spout. (Barrowman)

Struck-out (Corn.). The termination of a vein or lode by a fault. (Pryce)

Structural. Pertaining to, part of, or consequent upon the geologic structure: as a *structural* valley. (La Forge)

Structural plain. A gently sloping stratum plain. (La Forge)

Structural valley. A relatively long and narrow depression produced by the movements of the surface, as a synclinal valley. (Webster)

Structure. 1. That part of the geology of a region which pertains to the attitude of the rocks, the nature and amount, if any, of the deformation which they have undergone, and the distribution and mutual relations of the structural features. 2. In petrology, one of the larger features of a rock mass, like bedding, flow banding, jointing, cleavage, and brecciation; also the sum total of such features: contrasted with Texture, *which see.* (La Forge)

Strum. 1. (No. of Eng.) A kind of iron sieve placed round the suction pipe of a pump, to prevent stones or other rubbish passing into the pump. (Gresley)
2. (Scot.) A safety fuse. (Barrowman)

Strut. A mine prop to sustain compression, whether vertical, or inclined. (C. and M. M. P.)

Stub entry. A short, narrow entry turned from another entry and driven into the solid coal, but not connected with other mine workings; a dead end.

Stub iron. Iron made from old horseshoe nails: especially valuable for making gun-barrels. (Standard)

Stucco. 1. A fine plaster made of gypsum and glue-water, or of powdered white marble and fine sand, gypsum, and water: for walls or their relief ornaments. 2. Loosely, any plaster or cement used for the external coating of buildings. 3. Plaster of Paris. (Standard)

Studdle (Corn.). 1. A prop to support the middle of a stull. 2. A distance-piece between successive frames of timbering. (Raymond)
3. The vertical members of shaft-timber sets placed at each corner and at the intersection of the dividers and the wall plates. 4. An upright prop supporting a platform in a mine, usually one of a set of four. (Standard)

Stufa. A jet of steam issuing from a fissure in volcanic regions, at a temperature often above the boiling point of water. (Comstock)

Stuff. 1. Ore associated with the gangue of a lode. (Skinner)
2. The produce of a mine, as coal and slack. (Gresley)

Stugg (Scot.). To take down coal with the pick only. (Barrowman)

Stull. 1. The top-piece of a set of mine timbers. 2. A timber prop supporting the roof of a mine opening. (Weed)
3. (Corn.) A platform (stull-covering) laid on timbers (stull-pieces), braced across a working from side to side, to support workmen or to carry ore or waste. (Raymond)

Stull dirt; Stull rock. Material supported upon the stulls. (Ihlseng)

Stull-piece. A piece of timber placed over the back of a level to be covered with lagging, to prevent rock falling into the level from the stopes above. (Standard)

Stulm (from the Ger. *Stollen*). An approximately horizontal passage-way in a mine; an adit. (Webster)

Stump. A small pillar of coal left between the gangway or airway and the breasts to protect these passages; any small pillar. (Chance)

Stumping (Lanc.). A kind of pillar-and-stall plan of mining coal. (Gresley)

Stump pulling. Pillar robbing.

Stun. 1. In stone-cutting, to loosen the surface of, as stone in dressing, by blows with the edge or point of a hammer, delivered at right angles to the face. 2. A white or discolored place in marble or other stone, caused by a blow from a blunt-edged or blunt-pointed hammer. 3. A groove or scar on the sawed face of a piece of stone, caused by sand or grit between the side of the saw-blade and the stone. (Standard)

Stunning. A quarryman's term for the formation of fractures caused by the cutting bars of a channeling machine striking the rock excessively heavy blows. (Bowles)

Stup. A pulverized mixture of clay and coke or coal. Probably from the Ger. *Gestübbe.* (Raymond)

Stupp. A black deposit obtained in distilling mercury ores, consisting of a mixture of soot, hydrocarbons, mercury and its compounds, ore, dust, etc. (Webster)

Sturt (Corn.). A tribute-bargain which turns out profitably for the miner. (Raymond)

Sturtevant balanced-rolls. Rolls in which all four boxes are movable and held in position by springs. The idea is to divide the thrust whenever the springs yield and thus reduce internal stresses. (Liddell)

Sturtevant grinder. A disk grinder in which one disk is stationary and the other rotates. The stationary disk is moved out of center from time to time, so that any groove which forms can be ground out. (Liddell)

Sturtevant ring-roll crusher. A crusher similar to the Kent roller mill, *which see.* (Liddell)

Sturtevant roll-jaw crusher. A crusher in which the motion of the upper part of the jaws is like that of the Dodge crusher, while the lower parts of the jaws, of cylindrical surfaces of varying radii, grind the ore between them. (Liddell)

Stygian deposits. A general term for ore deposits formed underground by waters of atmospheric origin. (Eng. and Min. Jour. vol. 75, p. 257)

Styloilte. A small, short, columnar structure, transverse to the bedding, common in some limestones and calcareous shales and supposed to have been formed by differential vertical movement under pressure. (La Forge)

Stythe (Scot.). A miner's term for fire damp, or rather for the stifling, suffocating odor of choke damp that follows an explosion of the former (Page). Also spelled Stithe.

Sub. 1. A prefix used in chemistry to signify that the term to which it is prefixed is present in less than normal amount, or *sub*-oxide. (Webster)
2. (Mid.) Subsistence; money or wages paid on account. (Gresley)
3. Short for Sublevel in caving systems of mining.

Subaerial. Formed, existing, or taking place on the land surface: contrasted with Subaqueous. (La Forge)

Subaqueous. Formed, existing, or taking place beneath a body of water: contrasted with Subaerial. (La Forge)

Subbituminous coal. Black lignite; Lignitic coal.

Subcoastal plains. Submerged plains of the continental shelf. (Webster)

Subconchoidal. Imperfectly or indistinctly conchoidal. (Webster)

Subdivide. In geology, a divide between the tributaries of a main stream; a subordinate divide. (Standard)

Subdrifting and caving. *See* Top slicing combined with ore caving.

Subglacial. Formed or deposited beneath a glacier.

Subhedral. Bounded in part by crystal faces proper to the mineral itself and in part by surfaces formed against preexisting crystals; hypautomorphic; hypidiomorphic: said of some crystals in igneous rocks and intermediate in meaning between Euhedral and Anhedral. (La Forge)

Subhornblendic. Of or pertaining to material, as rocks that contain hornblende disseminated through their mass. (Standard)

Subindividual. One of the small crystals that often unite in parallel growths to build up larger crystals of the same general habit. (Standard)

Subjacent. Situated directly underneath; lying below; in geology, lying below a stratum or another formation. (Standard)

Subjoint. Minor joints diverging from or parallel to the regular joints. (Perkins)

Sublevel. An intermediate level opened a short distance below the main level; or, in the caving system of mining, a few feet (15–20) below the top of the ore body, preliminary to caving the ore between it and the level above. *See* Sublevel stoping; *also* Caving system of mining.

Sublevel backstoping. *See* Sublevel stoping.

Sublevel caving. *See* Top slicing combined with ore caving.

Sublevel method. *See* Sublevel stoping.

Sublevel slicing. *See* Top slicing combined with ore caving; *also* Sublevel stoping.

Sublevel stoping. A mining method involving overhand, underhand, and shrinkage stoping. Its characteristic feature is the use of sublevels. The sublevels are worked simultaneously, the lowest on a given block being farthest advanced and the "subs" above following one another at short intervals. The uppermost sublevel underneath the cover is partly caved. The caved

cover follows down upon the caved ore. The broken ore is in part drawn from the level, and a part remains in the stope in order to give lateral support to the walls and to prevent admixture of cover and ore. The breaking faces are developed by crosscuts, which are extended from wall to wall from the end of the sublevel. The method can also be looked upon as a retreating method, the ore body being worked from the top down and the individual blocks upon a given level being worked from their ends to the center (Young). Modifications of this method are: Chamber-and-pillar system; Chambers without filling; Combination of subslicing and stoping; Drift stoping; Filling system; Mitchell slicing system; Pillar robbing; Pillar robbing and hand filling; Room-and-pillar system; Square work and caving; Square work, pillar robbing, and hand filling; Sublevel back stoping; Sublevel method; Sublevel slicing system; and Substoping.

Sublimate. A coating or deposit formed in a glass tube or on charcoal as a result of heating certain minerals. (George)

Sublimation. The volatilization and condensation of a solid substance, without fusion, or without the intervening liquid stage being passed through.

Sublimation theory. The theory that a vein was filled first with metallic vapors. (Raymond)

Sublimation vein. A vein formed in accordance with the sublimation theory. (Standard)

Sublime. To pass from a solid to a gaseous state, and again condense to solid form, without apparently liquefying. (Webster)

Submarine blast. A charge of high explosives fired in bore holes drilled in the rock under water for dislodging dangerous projections and deepening channels. (Du Pont)

Submetallic. Applied to minerals having an imperfect metallic luster, as columbite, wolframite. (Dana)

Subnate. Applied to rocks formed within or below the crust. (Power)

Subporphyritic. Having, in an imperfect degree, the character of porphyry. (Century)

Subsalt. A basic salt. (Century)

Subsequent. Tributary to and subsequent in development to a primary consequent stream, but itself consequent upon structure brought out in the degradation of the region; subconsequent: said of some streams and their valleys; as a subsequent valley. (La Forge)

Subsequent deposits. A term proposed for ores which were not directly the result of igneous processes. (Eng. and Min. Jour., vol. 75, p. 258)

Subsidence. A sinking down of a part of the earth's crust. (Roy. Com.)

Subsidiary company. A company in which a majority of the shares of stock are held by another company, giving the control to the latter.

Subsilicate. A basic silicate. (Standard)

Subsilicic. Containing less than 50 per cent of silica: same as and much preferable to *basic*, which it is replacing. (La Forge)

Subslicing; Side slicing; End slicing. *See* Top slicing combined with ore caving.

Subsoil. 1. Broadly and loosely, the part of the regolith (earth mantle) which lies beneath the true soil and which contains almost no organic matter. 2. More precisely, a layer of the regolith, grading into the soil above and into unmodified rock waste below, which is less oxidized and hydrated than the soil proper and contains almost no organic matter, but is somewhat charged with and indurated by iron oxides and clay that has been leached down from the overlying soil. (La Forge)

Subsoiling. The firing of small charges of dynamite 2 or 3 feet below the surface for breaking up impervious strata of soil, clay, etc., for aerating, draining, and moistening the soil. (Du Pont)

Substalagmite. A compact, noncrystalline deposit of calcium carbonate. (Webster)

Substation. A station in which electric current is changed in character or potential. (H. H. Clark)

Substitution vein. A metalliferous vein formed through the agency of percolating waters by the partial or complete substitution of the vein material for the original rock. Called also replacement vein or deposit. (Webster)

Substoping. *See* Sublevel stoping.

Substratum. An under-layer or stratum; a stratum, as of earth or rock, lying immediately under another. (Standard)

Subterposition. The state of being placed beneath something else; specifically, in geology, the order in which strata are disposed in descending series. (Standard)

Subterrane. The bedrock beneath a surficial deposit. (La Forge)

Subterranean. Being or lying under the surface of the earth. (Webster)

Subtransparent. Of imperfect transparency. (Duryee)

Subtuberant. Having a domelike form due to igneous intrusion into the rocks beneath: said of some domes in strata and of the consequent deformation of the surface and the resultant form of the topography. (La Forge)

Subvitreous. A luster less glassy in appearance than that of common glass. (George)

Succinellite. Succinic acid, $C_4H_6O_4$, obtained in orthorhombic crystals from amber.

Succinite. 1. Amber. It occurs in irregular masses, without cleavage, possesses a specific gravity of 1.050 to 1.096, and fuses at 250° to 300° C. (Bacon). *Also called* Electrum. 2. Amber-colored grossularite. (Webster)

Succino (Sp.). Amber. (Halse)

Sucked stone (Corn.). A honeycombed or porous stone. (Pryce)

Sucker rod. The pump rod of an oil or artesian well. (Chance)

Sucking pump. A suction pump. (Standard

Suction anemometer. An anemometer that measures wind-velocity by the degree of exhaustion caused by the blowing of the wind through or across a tube. (Standard)

Suction basket. The strainer at the foot of the suction pipe of a pump or of a suction hose. (Standard)

Suction dredge. A dredge in which the material is lifted by pumping through a suction pipe (Weatherbe)

Suction pipe. That part of a pump where the water enters. (Barrowman)

Suction primer. A pump, auxiliary to a steam pump, used to exhaust the air from the main chamber, as a preliminary to the use of steam. (Standard)

Suction pump. A pump wherein, by the movement of the piston, water is drawn up into the partial vacuum formed under the retreating bucket on the upstroke, reflux being prevented by a valve in the pipe. Theoretically the suction pump will lift water 34 feet, but practically only about 26 to 28 feet. (Webster)

Sud (Prov. Eng.). Drift-sand deposited on flooded land. (Standard)

Sueldo (Mex.). Salary; wages. (Dwight)

Suelo (Mex.). Bottom; surface of ground. (Dwight)

Sugar of lead. Lead acetate.

Sugar spar (Corn.). Friable granular quartz. (Power)

Sugary quartz. A granular and somewhat friable and massive variety of quartz (Power). Sugar spar.

Suldenite. A name given by Stache and von John to gray, acidic, andesitic porphyrites in the eastern Alps. They range from 54 to 62 per cent, SiO_2, and have, in the prevailing gray groundmass, phenocrysts of hornblende, plagioclase, a little orthoclase, and accessory augite, biotite, and quartz. *Compare* Ortlerite. (Kemp)

Sulfato. 1. (Sp.) Sulphate. 2. (Mex.) In the *patio* process, sulphate of copper. (Halse)

Sulfuro (Sp.). 1. Sulphides; *Sulfuros* (Mex.), sulphide ores. 2. Rich sulphides of silver from lixiviation processes. (Halse)

Sullage. 1. Scoria on molten metal in the ladle. (Webster)
2. Water-deposited silt or mud. (Standard)

Sullage piece. Same as Deadhead, 1.

Sulman and Picard process. An oil flotation process in which are introduced bubbles of air or other gas, and also oil in the form of a spray, into the freely flowing acidulated pulp. (T. J. Hoover, p. 11)

Sulphate. 1. A salt or ester of sulphuric acid. 2. To treat or impregnate with sulphuric acid or a sulphate; to convert into sulphate. 3. To form a deposit of whitish scale (probably Pb_2SO_5, not the normal $PbSO_4$) on the plates of a storage battery. (Webster)

Sulphatite. A liquid compoun found in certain volcanic regions, consisting of native dilute sulphuric acid, H_2SO_4. (Standard)

Sulphatize. To convert into sulphate, as by roasting sulphide ores. (Webster)

Sulphide. A binary compound of sulphur, or one so regarded. Formerly called Sulphuret. Excepting the sulphides of alkali and alkaline earth metals, the metallic suphides are insoluble in water, or nearly so, and many occur as minerals. (Webster)

Sulphide zone. That part of a lode or vein not yet oxidized by the air or surface water and containing sulphide minerals.

Sulphur. 1. A non-metallic element occurring naturally in large quantities either native or in various sulphides. Native sulphur occurs in yellow orthorhombic crystals, in masses, crusts, and powder. Symbol, S; atomic weight, 32.06; specific gravity, 2.06. (Webster)
2. Iron pyrite, occurring in coal seams (Steel). Also iron sulphide (pyrite) occurring with Wisconsin and Missouri zinc ore. In southern States, synonymous with Pyrite.
3. Sulphureted hydrogen, H_2S. Stink damp. 4. (So. Staff.) An old, but improper, term for fire damp. (Gresley)

Sulphur-burner. A blast furnace in which sulphur is burned in the manufacture of sulphuric acid. (Standard)

Sulphur-concrete. A mixture of sulphur with pulverized stoneware and glass, melted and run into molds. (Century)

Sulphuret (Pacific coast). In miners' phrase, the undecomposed metallic ores, usually sulphides. Chiefly applied to auriferous pyrites. Concentrate and sulphide are preferable (Raymond). An old synonym for Sulphide.

Sulphur group. The elements sulphur, selenium, tellurium, and oxygen: formerly classed together, owing to their many properties in common. (Standard)

Sulphuric acid. A heavy corrosive oily liquid, H_2SO_4, colorless when pure, early made by distilling green vitriol, hence the name oil of vitriol. Now made by the chamber process and the contact process. (Webster)

Sulphur ore. Pyrite, often roasted for its sulphur. (Webster)

Summer black-oil. A black lubricating oil of 540° F. fire test, used as a heavy tempering oil and for waterproofing cement. (Bacon)

Summer oil. A heavy, railway car and engine oil that has a flash-point of above 140° C. and solidifies below —5° C. (Bacon)

Sump. 1. (From the German *Sumpf*.) An excavation in the coal or rock made below the gangway or in the bottom of a shaft to collect mine water. The gangway ditches or drains empty into it, and the pump draws the water from it. (Chance)
2. (Newc.) That part of a judd of coal which is extracted first. (Raymond)
3. An excavation smaller than, and ahead of, the regular work in driving a tunnel or sinking a shaft.
4. A round stone-pit, lined with clay, for receiving the metal on its first fusion. (Webster)
5. A storage tank for solutions, usually at a level below other vats. (Clennell, p. 279)
6. To undercut coal preliminary to placing a short-wall machine in position for cutting along the working face. Sometimes called a Sumping cut.

Sumper. 1. (Eng.) A shot placed in or very near to the center of the bottom of a shaft. (Gresley)
2. (Scot.) A shot for breaking up the bottom or floor. (Barrowman)

Sump fuse. A waterproof fuse for use in a sump. (Standard)

Sumping. 1. (Scot.) Cutting down into the floor; or, in sinking, cutting down at the lowest part of the shaft. (Barrowman)
2. Forcing the cutter bar of a coal cutter into or under the coal. Also called Sumping cut. (C. and M. M. P.)
3. A small square shaft, generally made in the air headings, when crossing faults, etc., or made to prove the thickness of coal, etc (Min. Jour.)

Sumping bar. An angle iron about 8 feet long with flanges about 4 inches high, weighing about 75 pounds. Its function is to guide the cutter bar on an electric coal cutting machine. (N. W. Rept., vol. 162, p. 861. Beck *v.* Beck Coal and Min. Co., Iowa)

Sumping cut. *See* Sump, 6.

Sumping hole (Aust.). The first or opening cut made by a coal cutter (Power). A sumping cut.

Sumping shot (Newc.). *See* Sumper, 1 and 2.

Sumpman (Corn.). A man employed in shaft sinking to assist the miner with the pumping machinery, timbers, etc.

Sump planks (So. Staff.). Strong timbers bolted together, forming a temporary bottom, or scaffolding, for the shaft. (Min. Jour.)

Sump pump. A pump employed to raise water from a mine sump. (Standard)

Sump shaft. That shaft in a mine at the bottom of which is the sump. (Standard)

Sump shot. A blast made near the center of a shaft that is being sunk, to make a collecting place for water. (Standard)

Sump solution. *See* Barren solution.

Sump winze. A winze sunk in the bottom of the lowest level, in order to explore the lode below and ascertain whether the sinking of the main shaft is advisable. (Standard)

Sun-baked. Hardened and desiccated by the sun's heat, as mud, clay, or unburnt bricks. (Standard)

Sun crack. *See* Shrinkage-crack.

Sunned oil. A trade name for crude petroleum, which is sometimes increased in density and fitted for use as a lubricant by exposing it to the sun as a thin layer on the surface of a tank of warm water, the more volatile portions being thus in part removed by evaporation. (Bacon)

Sun opal. Same as Fire opal. (Standard)

Sunshine. The trade name of a soft grade of paraffin wax with a low melting point. It can be burned in an ordinary miners' lamp with a nail (usually copper) in the wick and gives little smoke (Steel). *Also* Miners' sunshine.

Sunstone. A variety of oligoclase feldspar containing numerous small inclusions which cause a delicate play of colors. Used as a gem (U. S. Geol. Surv.).

Sun vein (No. of Eng.). Ore veins discovered on the south side of a hill. Sun is synonymous with south, so sun veins are south veins. (Power)

Superficial. *See* Surficial.

Superficial deposits. The most recent of geological formations; unconsolidated detrital material lying on or near the surface, generally unstratified. (Century)

Superficie (Sp.). Surface. (Dwight)

Superfluent. Applied by Dana to those igneous magmas which discharge at the summit of a volcano. *See* Effluent and Interfluent. (Daly, p. 131)

Supergene. Applied to ores or ore minerals that have been formed by generally descending water. Ores or minerals formed by downward enrichment (Ransome). *Compare* Hypogene, 2.

Superimpose. In geology, to establish a structural system over, independently of, and eventually upon underlying structures: said of terranes, rivers, drainage systems, valleys and other features of erosion; as, a *superimposed* valley. (Standard)

Superimposed drainage. A natural drainage system that has been established on underlying rocks independently of their structure. Three kinds are recognized: (*a*) by sedimentation, where the drainage system of newer strata is formed over and independently of that of closely underlying older strata; (*b*) by alluviation, where an extensive alluvial deposit has established a new and independent drainage system over that of the preceding surface; (*c*) by planation, where, after extensive planation of a rock-surface, a drainage system is established independent of the underlying rock-structure. (Standard)

Superphosphate. An acid phosphate; any fertilizing material consisting chiefly of soluble phosphates. (Webster)

Superposed. Not in adjustment to the structure of the rocks upon which it now flows, having acquired its course on a previously overlying terrane which has since been removed or cut through: said of some streams; same as superimposed, which it is replacing. (La Forge)

Superposición (Peru). Whole or part of a mining claim placed over an older one. (Halse)

Superposition. The order in which rocks are placed above one another. (Roy. Com.)

Superstratum. An overlying stratum or layer. (Webster)

Supplementary twining. Twining by which a crystal simulates the symmetry of a crystal class with higher grade in the same system. (A. F. Rogers)

Sur (Sp.). South. (Dwight)

Surbed. Set, as a stone, on edge, or in a position different from that in the quarry. (Standard)

Surcharge. 1. The algebraic sum of the losses and gains of a cornet of gold during cupellation and solution. (Ricketts, p. 128)
2. In ceramics, an enamel-painting on an enamel ground of darker hue. (Standard)

Surface. The top of the ground; the soil, clay, etc., on the top of strata (Barrowman). As used in the conveyance of coal in place, or in a conveyance of land reserving the minerals, includes not merely the surface within the boundary lines, without thickness, but includes whatever earth, soil, or land lies above and superincumbent upon the coal or mineral reserved. (Yander *v.* Right, 66 Indiana, p. 319; 32 American, p. 109; Stonegap Colliery Co. *v.* Hamilton, 89 S. E. Rept., p. 310)

Surface break; Surface damage. The disturbance or sinking of the strata reaching to the surface consequent on the extraction of coal or mineral. (Barrowman)

Surface charges. All expenses incurred on the surface of a mine which have to be charged against the mineral. (Duryee)

Surface condenser. A condenser in which exhaust steam is condensed by contact with the surfaces of metal cooled by a flow of cold water on their sides opposite the condensing surfaces. (Century)

Surface damage (Scot.). Ground occupied and damaged by colliery operations; the compensation for such. (Barrowman)

Surface deposits. Ore bodies that are exposed and can be mined from the surface. (C. and M. M. P.)

Surface geology. The geology of the superficial deposits and of the surface of the fundamental rocks. (Roy. Com.) *Compare* Aerial geology.

Surface glaze. In ceramics, a thin and perfectly transparent glaze over both the body and the decoration.

Surface lines. The boundary lines of a mining claim as indicated by the locator. (U. S. Min. Stat., p. 81)

Surface man. A miner (or other workman) employed in an open-air working. A yard or shop employee at a mine.

Surface mining. Mining at or near the surface; placer mining; open-pit mining. (Standard)

Surface rights. The ownership of the surface of land only, where mineral rights are reserved. (Weed)

Surface tension. That property, due to molecular forces, which exists in the surface film of all liquids and tends to bring the contained volume into a form having the least superficial area. The thickness of this film amounts to less than a thousandth of a millimeter, and is considered to equal the radius of the sphere of molecular action, that is, the greatest distance at which there is cohesion between two particles. Particles lying below this film, being equally acted on from all sides, are in equilibrium as to forces of cohesion, but those in the film are on the whole attracted inward, and tension results (Webster). As used in the flotation process, the contractile force at the surface of a liquid whereby resistance is offered to rupture. (Rickard)

Surface water. Water running into underground workings from the surface of the ground. (Barrowman)

Surface working. Same as Surface mining. (Standard)

Surfacing. 1. The top layer or crust of a pavement. 2. Treating the surface of a finished roadway with a bituminous material. (Bacon)
3. The act of placing the top of the rail on an even line. 4. Gold digging on the surface. 5. To wash the surface deposits for gold. (Webster) 6. The auriferous material that lies at the surface. (Standard)

Surfeit (No. of Eng.). Choke damp. (Gresley)

Surficial. Characteristic of, pertaining to, formed on, situated at, or occurring on the earth's surface; especially, consisting of unconsolidated residual, alluvial, or glacial deposits lying on the bedrock. (La Forge)

Surge tank. A standpipe or a storage reservoir at the down-stream end of a closed aqueduct or feeder pipe, as for a water wheel to prevent sudden variations of pressure and to furnish water quickly. (Webster)

Surging. The flapping of a moving rope, as of a hoisting cable. (C. M. P.). *See* Whipping, 1.

Surtidero (Sp.). A conduit or sluice; *S. de agua;* a reservoir; basin. (Halse)

Surturbrand. An Icelandic term for a peat-like variety of brown coal or lignite occurring in the Pliocene deposits, and sometimes under the volcanic overflows of that island. (Page)

Survey. 1. To determine and delineate the form, extent, position, etc. of a tract of land, coast, harbor or the like, by taking linear and angular measurements, and by applying the principles of geometry and trigonometry. 2. To view with a scrutinizing eye; to examine with reference to condition, situation, value, etc. (Webster)

Surveying. 1. Act or occupation of making surveys. 2. That branch of applied mathematics which teaches the art of determining the area of any portion of the earths' surface, the lengths and direction of bounding lines, the contour of the surface, etc., and accurately delineating the whole on paper. (Webster)

Surveyor. 1. One who surveys or measures land surfaces, mines, etc. 2. A customs officer. (Webster)

Surveyor general. 1. A principal surveyor. 2. An officer in charge of the survey of public lands of the United States. (Webster)

Surveyors' measure. A system of measures used by surveyors, of which the unit is the chain. (Standard)

Sussexite. A special name suggested by Brögger for the eleolite porphyry, originally described by Kemp, from Beemerville, Sussex Co., N. J. The name was, however, applied years ago to a hydrated borate of manganese and magnesia, from Franklin Furnace, N. J. (Kemp)

Sutton, Steele, and Steele dry table. A concentrator of the Wilfley type in motion, but instead of using water, stratification is by means of rising currents of air. The heavy grains are pushed forward by the head motion, while the lighter grains roll or flow down the slope toward the tailing side. (Liddell)

Suture joint. Same as Stylolite, *which see.*

Swab. 1. A kind of hemp brush for holding water to moisten mold joints, to spray on edges, to spread blacking on dry-sand molds, etc. 2. To clean, as with a swab; to mop. (Webster)

Swab stick. A stick frayed at one end, for cleaning the sludge out of holes in process of being bored for blasting. (Roy. Com.)

Swad (Newc.). A thin layer of stone or refuse coal at the bottom of the seam. (Raymond)

Swag. 1. (Lanc.) Subsidence or weighting of the roof. (Gresley) 2. (Aust.) A tramping bushman's luggage, rolled up in a long bundle and carried on the back or over the shoulder; any similar roll of luggage. (Webster)

Swage. A tool variously shaped or grooved on the ends or faces, used by workers in metals for shaping their work; a dolly, jumper, or upset (Webster). A tool used in sharpening drill bits.

Swage block. A perforated block of cast iron or steel, having grooved sides and adapted for use in heading bolts and swaging large objects. (Webster)

Swaged. Reduced in diameter by use of blacksmith's swages, hence the name. This is a hammering process, but the same result may be attained by press forging or spinning. (Nat. Tube Co.)

Swagman (Aust.). A man who travels in search of employment; so called because he carries his swag, or bundle of clothes, blankets, etc. (Century)

Swallet (Eng.). 1. A fissure or hole; especially a fissure in limestone rocks through which a stream sinks (Webster). *Also* Swallow; Swallows.
2. An inrush of water in a mine.

Swallow (Derb.). A loose, broken, or porous place in a vein. It derives its name from the ease with which water sinks through the loose material (Hooson). *Also* Swallet.

Swallow hole. *See* Sink, 1; Sink hole.

Swally; Swelly. A trough, or syncline, in a coal seam. (C. and M. M. P.)

Swamp. 1. A local depression in a coal bed in which the water collects. Applied particularly in bituminous coal mining. (Chance)
2. As applied to a mining claim, to clear a narrow strip along the boundary line, where the location is on timber land. (Leveridge *v.* Hennessey, 135 Pac. Rept., p. 909)

Swamper. A rear brakeman in a metal mine.

Swamp marl. A marl, found at the outlets of lakes, composed of myriads of tiny shells in different stages of cementation. (Standard)

Swamp muck. Imperfect peat, especially the less compact variety. (Century)

Swamp ore. Bog iron ore; Limonite. (Webster)

Swape (No. of Eng.). A large oar by which coal boats are steered (Gresley). A variation of Sweep.

Swarf. 1. (Scot.) A tool for widening bore holes. (Barrowman)
2. Fine metallic particles removed by a cutting tool; chippings from soft iron castings, used as a reducing agent in certain chemical manufactures. (Webster)

Swaugh (Derb.). A soft clay in the vein. (Hooson)

Swaying of a bank (York.). Undergoing disturbance due to weight of the roof. A settling of the mine roof. (Gresley)

Sweal. 1. (Eng.) To burn slowly. 2. To melt and run down; to waste away without feeding the flame. A candle is said to sweal when the grease runs down, owing to its burning in a strong current of air or being improperly carried or fixed. (Gresley)

Sweat. 1. To condense moisture in beads or drops on the surface (Webster). The roof of a mine is said to sweat when drops of water are formed upon it, by condensation of steam formed by the heating of the waste or goaf. (Gresley)
2. To exude nitroglycerin; said of dynamite. (Webster)

Sweating. The condensation of moisture and distillation products on the surface of a roast heap, forming a damp and sticky crust. (Peters, p. 120)

Swedge; Drift. A tool used in oil wells for straightening bulged casing. (Mitzakis)

Swedish iron. A soft and comparatively pure iron. (C. M. P.)

Swedish process. *See* German process.

Sweep. 1. A curved metal blade projecting from the central shaft of a pug mill, to force clay through holes at the bottom. 2. In founding, a profile pattern, used especially in forming molds for cylindrical or other symmetrical articles. (Standard)
3. (Aust.) That part of a branch that reunites with the main vein farther on. (Power)

Sweeper. 1. One who cleans the brick pavement between stock house, stoves, and blast furnace. (Willcox)
2. In an iron mill, one whose duty it is to remove with a twig broom the scale that forms on plates, etc., during the process of rolling. (Standard)

Sweep-head pick (Eng.). A curved pick. (Gresley)

Sweeping. *See* Sweeps, 1.

Sweeping table. A stationary buddle. (Raymond)

Sweep-plates (Eng.). Curved plates for barrow ways at a turn. (Bainbridge) A turn sheet.

Sweep-point (Aust.). The curved rail of a turnout that crosses the main rails and is moved against or from the outer main rail, according to the track it is desired the skip or car shall run on. (Power)

Sweep rail (Aust.). The inner curve of a turnout. (Power)

Sweeps. 1. The dust of the workshops of jewelers, goldsmiths, silversmiths, and assayers and refiners of gold and silver (Raymond). Also Sweeping.
2. (Eng.) Brushes or pieces of cloth for sweeping the smooth surface of a buddle. (Hunt)

Sweepwasher. A person who extracts precious metals from the sweepings of refineries of gold and silver. (Ure)

Sweepwashings. Valuable metal washed from sweepings. (Standard)

Sweet (Eng.). Free from fire damp or other gases, or from fire stink. (Gresley)

Sweetish astringent. Applied to those minerals that have the taste of alum. (Dana)

Sweet roasting. Complete roasting, or until arsenic and sulphur fumes cease to form. *See* Roasting.

Swell. 1. A local enlargement or thickening of an ore or coal deposit. (Webster)
2. A space in a seam from which the coal has been eroded and its place filled with clay or sand. Called also Horse, Horseback, Swineback, Want. (Standard)
3. A low dome or quaquaversal anticline of considerable areal extent. (La Forge)

Swelly (No. of Eng.) A local thickening of a coal seam. Also called Swally; Swilley; Swell. (Standard)

Swilling-vat. A vat in which tinplate is washed after pickling. (Standard)

Swilly (York.). A detached portion of coal strata. (Gresley) *See* Swell, 2.

Swimming stone. A variety of opal that floats on water: found in light, spongy, concretionary or tuberose masses. Called also Floatstone. (Standard)

Swindell producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 315)

Swine back (Wales). *See* Horseback, 3 and 5; also Swell, 2.

Swine stone. A variety of marble that gives off a fetid odor when broken or rubbed (Power). Also called Stink Stone. *See* Bituminous limestone.

Swing (Eng.). The arc or curve described by the point of a pick or maundril when being used. Also called the swing of the pick. (Gresley)

Swinging a claim. The adjustment of the boundaries of a mining claim to more nearly conform to the strike of the vein. A reasonable time is allowed the discoverer to explore the vein or lode to find out its strike and thus enable him to lay his claim. (U. S. Min. Stat., p. 233)

Swinging bont; Swinging bant (Mid.). Before the introduction of cages and guides, the skips or buckets of coal, etc., also the men, were raised and lowered swinging loose in the shafts (Gresley). *See* Bant.

Swinging plate. An amalgamated copper plate hung in a sluice to catch float gold. (C. and M. M. P.)

Swing jack. A jack used to replace derailed cars on a railway track. (Century)

Swing loose (Ark.). To gradually loosen over a considerable area and sag. Said of the rock over a mine working. (Steel)

Swing parting (Ark.). A parting some distance from the mouth of an entry. The loaded cars are left by the gathering driver to be taken out by a swing driver, with a swing mule or a spike team. (Steel)

Swing table. A movable bed on which plate glass is cemented for polishing; a runner. (Standard)

Switch. 1. The movable tongue or rail by which a train is diverted from one track to another. 2. The junction of two tracks. 3. A movable arm for changing the course of an electrical current. (Steel)

Switchback. An arrangement of zigzag railroad tracks for lessening the grade up a steep hill (Webster). Common in mountainous mining districts.

Switchboard. A board where several electrical wires terminate and where by means of switches connection may be established between any of these wires and the main wire. (C. and M. M. P.)

Switch plate. An iron plate on tramroads in mines, to change the direction of movement of cars (Standard). A turn sheet.

Switch rope. A short length of rope fitted with a hook on one end and a link on the other, used for the switching of cars. (C. M. P.)

Swither. A term used in Wisconsin lead regions to denote a crevice or crack branching from a main lode. (Power)

Swivel. In oil-well drilling, a short piece of casing having one end belled over a heavy ring, and having a large hole through both walls, the other end being threaded.

Swom stuff (Eng.). An old term for certain alluvial deposits found in coal measures. (Gresley)

Sycee-silver. Pure, uncoined, lump silver of various sizes, usually having a banker's or assayer's seal stamped on them, used by Chinese as a medium of exchange and reckoned by weight. The larger, sometimes called Shoes, are boat-shaped, and weigh about one pound troy. (Standard)

Sycite. A fig-shaped pebble or mass of flint. (Standard)

Syderolite. A variety of Bohemian earthenware. (Standard)

Syenite. Any granular igneous rock composed essentially of orthoclase, with or without microcline, albite, hornblende, biotite, augite, or corundum. (La Forge) In mica syenites hornblende is replaced by biotite and in augite syenites it is replaced by augite. If a small quantity of quartz is present it is called quartz syenite. In nepheline syenite the feldspar is partly replaced by nepheline. (U. S. Geol. Surv.)

Syenite porphyry. A rock of porphyritic texture and same mineral composition as syenite (Ries)

Sylvan. Native tellurium. (Standard)

Sylvanite. A gold-silver telluride, $(Au,Ag)Te_2$, containing gold and silver in the atomic ratio of 1 to 1. This requires 24.5 per cent of gold and 13.4 per cent silver. (U. S. Geol. Surv.)

Sylvite. Native potassium chloride, KCl. (Dana)

Symbols of crystal faces. In crystallography, the mathematical expressions for designating the position of crystal faces on coordinate axes. (A. F. Rogers)

Symmetrical dispersion. In optical mineralogy, the dispersion which produces an interference figure with color distribution symmetrical to the trace of the axial plane and also to a line normal to it. (A. F. Rogers)

Symmetry. The regular and symmetrical arrangement of certain properties of crystalline substances, such as their crystal form, their optical properties, and their electrical properties, with reference to certain fundamental planes and axes, called planes and axes of symmetry. It depends upon and is a consequence of the molecular structure of the crystal. (La Forge)

Symon fault. Same as Swell, 2.

Symon's disk crusher. A mill in which the crushing is done between two cup-shaped plates that revolve on shafts set at a small angle to each other. These disks revolve with the same speed in the same direction and are so set as to be widest apart at the bottom. Feed is from the center, and the material is gradually crushed as it nears the edge, and is then thrown out by centrifugal force. (Liddell)

Synchronal. Occurring at the same time. (Power)

Synchroneity. Synchonism; specifically (*Geol.*), supposed coincidence in the time of formation; said of strata. (Standard)

Synclase. A term used by Daubrée for minor divisional planes produced by some intense mechanical or molecular motion; generally by contraction, as in cooling and drying. (Power)

Synclinal. In geology, characteristic of, pertaining to, occurring, or situated in, or forming a syncline. (La Forge) The opposite of anticlinal.

Synclinal axis. In geology, the central line of a syncline, toward which the beds dip from both sides. (La Forge)

Syncline. A fold in rocks in which the strata dip inward from both sides toward the axis. The opposite of Anticline. (La Forge)

Synclinore. Same as Synclinorium.

Synclinorium. A compound syncline; a closely folded belt the broad general structure of which is synclinal. (La Forge) Called also Synclinore.

Syndicate. An association or group of persons, usually financiers or capitalists, who combine to carry out, on their own account, a financial or industrial project, as the underwriting of an issue of bonds, the carrying out of a great industrial enterprise, etc. (Webster)

Syngenetic. In mineralogy, formed at the same time as the inclosing country rock: said of some ore deposits. (La Forge)

Synthesis. In chemistry, the act or process of making or building up a compound by the union of simpler compounds or of its elements. Contrasted with analysis. (Webster)

Syssiderite. Daubrée's name for those meteorites that consist of silicates cemented together by metallic iron. (Kemp)

System. 1. A great series of strata having some general character in common. Formations are local divisions and many of them can only be recognized in onc country, whereas systems are sufficiently comprehensive to be recognized in all parts of the world (Roy. Com.). The stratigraphic division of second rank in the nomenclature in general use. The chronologic division of equivalent rank is a *period*.
2. In crystallography, the division of first rank, in the classification of crystals according to form. The six systems ordinarily recognized are the Isometric, Tetragonal, Hexagonal, Orthorhombic (or rhombic), Monoclinic, and Triclinic; some divide the hexagonal system into Hexagonal and trigonal. (La Forge)
3. Regluar method or order; plan.

Systematic timbering. Placing mine timbers according to a predetermined plan, regardless of roof conditions. (C. and M. M. P.)

T.

Tabah (Sumatra). A crowbar used in gold mining. (Lock)

Tabby (Morocco). A mixture of lime with shells, gravel, or stones in equal proportions, with an equal proportion of water, forming a mass which when dry becomes as hard as rock; a substitute for bricks or stone in building. (Century)

Tabbyite. Same as Wurtzilite.

Tabique. 1. (Mex.) A partition wall in a mine. (Dwight)
2. (Chile) A small square inclosed by walls about 4 feet high for roasting silver-bearing galena. (Halse)

Tabla (Mex.). 1. Board or plank. 2. The broader face of a beam or timber. 3. One of the sides or front of an excavation. 4. *T. de alto*, hanging wall; *T. de bajo*, foot wall. (Dwight)

Tabladillo (Peru). An inverted *injenio* in which the horizontal water wheel is arranged above the mill stones. (Pfordte)

Table. 1. (Scot.) A platform or plate on which coal is screened and picked. (Barrowman)
2. A concentrating machine for separating finely crushed particles of ore from gangue. (Weed)
3. The upper flat surface of a diamond or precious stone, the sides of which are cut in angles; a large flat facet on the top of a brilliant.
4. A circular plate of crown glass. (Webster)
5. An iron slab with a raised rim, on which melted glass is spread in making plate glass. (Standard)

Table cut. Having a flat top or table with a beveled or triangular facet border; said of cut diamonds, emeralds, etc. (Standard)

Table cutter. A lapidary who cuts tables or plane faces on diamonds or other precious stones. (Century)

Table diamond. A thin diamond cut with a table, 3, faceted on beveled sides or edges, and a flat undersurface. (Webster)

Tableland. A plateau, or elevated region of flat or undulating country rising to heights of 1,000 feet and more above the level of the sea (Power). *See* Plateau.

Tableman. In a plate-rolling mill, one who works at a table. (Standard)

Table mountain. A mountain with a flat top. (Standard)

Tablero (Mex.). A tally board. (Dwight)

Table spar. Tabular spar. *See* Wollastonite. (Century)

Tabletura (Sp.). A slab. (Lucas)

Tablón (Mex.). A wooden plank. (Dwight)

Taboleiros (Braz.). Lower bench deposits or placers older than the present river channels. (Halse)

Tabréez marble. A beautiful transparent limestone, composed of innumerable laminæ, thin as paper, and formed by deposition from a celebrated calcareous spring near Maragha, Persia. (Page)

Tabular crystal. A crystal flattened parallel to any face. (Standard)

Tabular spar. Wollastonite. (Standard)

Tabular structure. A tendency in certain igneous or crystalline rocks to separate into plates or laninæ. (Standard)

Tachia (Bol.). Llama dung (Lucas). *Also* Taquia.

Tachylyte. Basaltic glass; hyalomelane; the glassy rock forming the thin peripheral shell of some basalt masses. (La Forge)

Tack. 1. (No. of Eng.) A small pillar. *See* Spurn. 2. (Som.) A wooden scaffold put into a mine shaft for temporary purposes. (Gresley)
3. A small pillar of coal. (Morine)
4. Veinstone; Gangue, etc. (Duryee)
5. (Scot.) A mining lease. (Barrowman)

Tackle (Corn.). The windlass, rope, and kibble. (Raymond)
An assemblage of ropes and pulleys arranged for hoisting or pulling. (Webster)

Tackler skip (So. Staff.). A kind of box in which men used to ride in a shaft; used also for carrying minerals. *See* Paddy pan; Bant, 2, and Bont, 1. (Gresley)

Tacklers; Tucklers (Leic.). 1. Small chains put around the top of loaded tubs or buckets, to keep the coal from falling off. 2. Short chains formerly used for raising and lowering men in a shaft. Three men generally sit in them at one time. *See* Bant, *also* Bont, 1. (Gresley)

Tacksman (Scot.). The lessee of a colliery (Gresley). *See* Tack, 5.

Taco (Sp.). 1. A stopper or plug. 2. Tamping or stemming. 3. A tamping bar or rammer. 4. *Tacos* (Mex.) Stones in the bottom of an *arrastre*. (Halse)

Taconic. That series of rocks containing the primordial fauna, at least that portion which is older than New York Potsdam. It is the Lower Cambrian of English geologists, and the Huronian of the typical Huronian area of the Canadian geologists. Named from the Taconic mountains of western New England, by Dr. E. Emmons, it antedates, as a primordial system, both Cambrian and Huronian. It is the principal iron-ore-bearing system of the Lake Superior region. (Winchell) The term was not generally accepted by geologists.

Taconite. *See* Taconyte. Also called Jasper, and Iron formation.

Taconyte. A name proposed by H. V. Winchell for the cherty or jaspery, but at times calcareous or more or less quartzitic rock, that incloses the soft hematites of the Mesabi Range, Minn. Taconytes are regarded as in large part altered greensands by J. E. Spurr. The term is current in the Mesabi iron range. The name is derived from Taconic, E. Emmons' rejected geological system. (Kemp)

Tactite. A rock of more or less complex mineralogy formed by the contact metamorphism of limestone, dolomite or other calcareous rocks into which foreign matter from the intruding magma has been introduced by hot solutions. It does not include the inclosing zone of tremolite, wollastonite and calcite. A group name similar to gneiss, schist or porphyry. (Frank L. Hess)

Tag. A numbered piece of tin or wood that a miner attaches to, or places on, the cars loaded by him. These tags are removed at the tipple where the car is credited to the miner. *See* Ticket, 3. *Compare* Wedge rock.

Tagger. Tin plate below the standard size; or in the plural, very thin tin plate. (Standard)

Tague (Eng.). An iron plate fitted on one side with a semicircular projection or rib, and two other short curved pieces, adjusted to the gauge of the tram rails, by which the wheels of the trams are guided from the plate onto the rails. (Gresley)

Tahona (Mex.). An arrastre operated by water power (Dwight). In Western U. S., an arrastre operated by horse- or mule-power. (Standard)

Tahonero (Mex.). The man in charge of the *tahona*. (Dwight)

Tail. 1. (Also plural). The inferior, less valuable, or refuse part of anything; foots, bottoms, dregs; sediment. *See* Tailings. (Murray)
2. The poor grade of ore slime at the lower end of the slime-box as it flows from the stamps. 3. The unexposed end of a brick or stone in a wall; a tailing. (Standard)

Tail-back (Eng.). When fire damp ignites and the flame is elongated or creeps backward against the current of air, and possibly causes an explosion of a large body of gas, it is said to tail-back into the workings. (Gresley)

Tail chain (Scot.). A chain by which a horse hauls hutches or wagons. Putters in former times also used a tailchain. (Barrowman)

Tail-crab. In mining, a crab or winch for operating a tail-rope. (Standard)

Tail house; Tail mill. The buildings in which tailings are treated. (Raymond)

Tail-in (Mid.). To run out or terminate a length of holing stints at a buttock or other point along the stall face. (Gresley)

Tailing. The refuse from a metallurgical process; if the refuse from several processes or more than one mill should meet, the result could be described as "tailings" (Rickard). The material from which one of more concentrated or partly concentrated products have been removed, and which is available for further treatment. (Eng. and Min. Jour., vol. 107, p. 317) Usually used in the plural. *See* Tailings.

Tailing machine (Aust.). A machine or apparatus for dressing the tailings, and for obtaining gold from the detritus from other ore dressing apparatus. (Davies)

Tailing out. *See* Dying out.

Tailing-pit. *See* Catch-pit.

Tailings. 1. The parts, or a part, of any incoherent or fluid material separated as refuse, or separately treated as inferior in quality or value; leavings; remainders; dregs. In metallurgy, the part rejected in washing an ore that has passed through the screens of a stamp-mill; the worthless slimes left after the valuable portion has been separated by dressing or concentration. The sand, gravel and cobbles which pass through the sluices in hydraulic mining were formerly generally designated as tailings, but of late years, especially in State and United States legislative documents, they have been called "mining débris" or simply "débris". (Century)
The lighter or refuse ore accumulated at the lower end of a buddle, or washing apparatus, or carried away by the water. (Webster)
Those portions of washed ore that are regarded as too poor to be treated further: used especially of the débris from stamp mills or other ore-dressing machinery, as distinguished from material (concentrates) that is to be smelted. (Standard)
The inferior leavings or residue of any product; foots, bottoms. In mining the residuum after most of the valuable ore has been extracted. (Murray's Dict.)
The term "tailings" has been construed as including slag. (Butte & Boston Cons. Min. Co. *v.* Montana Ore Purchasing Co., 121 Fed. Rept., p. 526)
The term "tailings" as used in the mineral industry is used in the plural form by all of the authorities cited above.
2. The decomposed outcrop of a vein or bed. (Murray's Dict.)

Tailings wheel. A wheel carrying buckets or compartments on the periphery and used in conveying liquid, pulp, or sand from a lower to a higher level. (Clennell, p. 181)

Tailles chansantes (Fr.). Coal workings where the strata lie horizontal or nearly so. (Gresley)

Tailles montantes (Fr.). Workings to the rise in steep seams. (Gresley)

Tail of level (Scot.). The delivery end of a water level. (Barrowman)

Tail of water (Scot.). The edge of standing water in workings. (Barrowman)

Tail pipe. The suction pipe of a pump.

Tailrace. The channel in which tailings, suspended in water, are conducted away. (Raymond)

Tail rope. 1. The rope that is used to draw the empties back into a mine in a tail-rope haulage system.
2. A counter-balance rope attached beneath the cage when the cages are hoisted in balance. (C. M. P.)
3. A hemp rope used for moving pumps in shafts. (Gresley)

Tail-rope haulage. A system of rope haulage by which the full hutches (cars), with the tail rope attached behind, are drawn by a main rope passing over a drum, and the empty hutches, with the main rope attached, are drawn back again by the tail rope passing over another drum. (Barrowman)

Tails (Corn.). Refuse tin ore thrown behind the stamps to be treated again (Davies). *See* Tailings.

Tails-common (Eng.). Washed lead ore.

Tail sheave (Aust.). The return sheave for an endless rope or the tail rope of the main-and-tail-rope system, placed at the far end of a haulageway. (Power)

Tail water. Water in a tail race.

Tajadera. 1. (Mex.). A wedge to break the slimes deposited in the vat of the *patio* process. (Halse)
2. A chopping knife; a chisel.
3. A sluice from a mill dam. (Vel.)

Tajear (Peru). To stope, usually underhand. (Halse)

Tajo (Sp.). 1. A cut or opening in a mountain. 2. *T. abierto* (Mex.), open-cut mining. 3. A working place or cut. Any long, vide opening, as distinguished from a gallery or shaft. (Halse)

Take. 1. (Eng.) The extent or area of a lease of mineral property, often several thousand acres. 2. (Lanc.) To show or reveal gas. (Gresley)

Taker (Eng.). A contractor; a man who works in a mine on tribute. (Davies)

Taking (Eng.). A mineral-land lease. *See* Take, 1; *also* Tack. (Gresley)

Take out (Cumb.). To crop out (Gresley). An out-crop.

Take over. To assume the ownership, control, or management of, as a mining property.

Taker-off (York.). Same as Puller-off

Take the air. 1. To measure the ventilating current. 2. Applied to a ventilating fan as working well, or working poorly. (Steel)

Take-up-bottom (Ark.). To remove rock from the floor of a roadway to increase the height; also called Bottom brushing. (Steel)

Taker (Corn.). A leaser; a contract miner. (Pryce)

Taking-off boy. In brickmaking, a boy who removes newly made bricks from a pallet or brick-machine to the barrow. (Standard)

Taking-of-props (Lanc.). Drawing the timbers from the mined-out workings. (Gresley)

Talabordón (Colom.). A board or plank to increase the height of a dam, flume, etc. (Lucas)

Talacha (Mex.). A mattock; a pick-ax. (Halse)

Taladrar (Sp.). To bore or drill. (Dwight)

Taladro (Mex.). 1. A drill; rock drill. *T. de punta de diamante*, a diamond drill. 2. A boring bit. 3. The hole bored by a drill. 4. (Cent. Am.) An adit or level. *See* Socavón. (Halse)

Talc. A hydrous magnesium silicate, $H_2O.3MgO.4SiO_2$. Has a greasy or soapy feel and is soft and easily cut. Occurs in beds more or less impure and is then known as steatite or soapstone. Also called Potstone because it has been used for pots, owing to the ease with which it is worked and to its resistance to ordinary heats. French chalk is a variety used for crayons. *See* Soapstone. (U. S. Geol. Surv.)

Talcite. 1. A massive variety of talc. 2. A kind of muscovite. (Century)

Talco (Sp.). Talc. (Min. Jour.)

Talcoid. Resembling talc, as talcoid schist. *See* Sericite. (Roy. Com.)

Talcose. Containing talc, as potstone, steatite, and talcose schist. (Roy. Com.)

Talcose granite. Same as Protogine. (Standard)

Talcose schist. Same as Talc-schist. (Standard)

Talc-schist. Schistose rocks consisting chiefly of talc and quartz. Talc is also prefixed to several other rock names. (Kemp)

Talcum. Talc; Soapstone.

Tale (Som.). A day's work or a day's output of coal. (Gresley)

Talega (Mex.). Coin bag. (Dwight)

Talio (Sp.). Thallium. (Dwight)

Talk. An old form of the word talc.

Tallar (Sp.). To cut gems; to hew stones. (Halse)

Taller (Sp.). 1. A shop. 2. A laboratory. 3. A mill; *T. de preparación mecánica*, ore dressing floors. (Halse)

Tallow drop. A style of cutting precious stones in which the stone is domed on one or both sides. (Century)

Tallow top. A precious stone with a very rounding front and a flat back. (Standard)

Tally. 1. A mark or number placed by the miner on every car of coal sent out of his place, usually a tin ticket. By counting these, a tally is made of all the cars of coal he sends out. Called a Check in Arkansas. *See* Tag; *also* Ticket and Motty, 2. 2. Any numbering, or counting, or memorandum, as a tally sheet. (Steel)

Tally-shouter (Eng.). One who calls out the numbers on the tallies to the weigher. (Gresley)

Talmi-gold. A kind of brass made to resemble gold, sometimes plated. Called also Abyssinian gold. (Standard)

Ta-lou (China). A glass-flux consisting of lead silicate with a little copper, used by the Chinese as an enamel-color on porcelain. (Standard)

Talud (Sp.). Slope or declivity of a bank; talus. (Halse)

Talus. A heap of coarse rock-waste at the foot of a cliff, or a sheet of waste covering a slope below a cliff; same as Scree, which is more commonly used in Great Britain, whereas talus is more commonly used in the United States, but is often incorrectly used for the material composing the talus. (La Forge)

Tambang (Sumatra). Mines. (Lock)

Tambikir quali (Malay). A black incrustation found on auriferous quartz. (Lock)

Tambor (Sp.). 1. Hoisting drum. 2. A trommel. 3. *Veta de T.*, a bunchy vein. 4. (Colom.) A vertical shaft between two levels; a winze. (Halse)

Tambre (Colom.). A dam. (Halse)

Tamiz (Mex.). Fine screen. (Dwight)

Tamizar (Peru). To sift or screen. (Halse)

Tam-o-Shanter. A very fine-grained soft, gritty, natural stone found in Scotland. It is used in the United States as an ax stone and for sharpening knives. (Pike)

Tamp. To fill (usually with clay) the bore hole or other opening through which an explosive charge has been introduced for blasting. (Raymond)

Tamper. 1. One who tamps. 2. An implement for tamping; a tamping iron or tamping bar (Standard). Sometimes made of wood, copper, or iron with a copper tip. *See* Tamping bar.

Tamping. In common mining parlance the word *tamping* is now, and for a long time has been used, to designate both the inert material used on top of a charge of powder or dynamite, and the operation of compressing it into place. *See* Stemming, which is the term preferred for the inert material, while tamping more correctly is the act of compressing the stemming.

Tamping bar. An iron bar, shod with copper to obviate striking fire, used for compressing the stemming. *See* Tamper.

Tamping plug. A plug of iron or wood used instead of tamping material (stemming) to close up a loaded blast hole. (Standard)

Tanate (Mex.). Leather, hide or jute bag to carry ore or waste rock. (Dwight)

Tanatero (Mex.). A laborer, or bag carrier. (Dwight)

Tanda (Mex.). The ore or waste (usually waste) that is knocked down or loosened in driving a face or sinking a shaft. (Dwight)

Tangers (Wales). Timbers fixed in a particular manner for supporting the sides of headings in soft ground. (Gresley)

Tank. 1. A large vessel or receptacle, made either of wood or of metal, intended to contain a fluid as gas or water; as water tank, gasoline tank (Rickard). Used as a synonym for Vat.

2. A subterranean reservoir into which a pump delivers water for another pump to raise. (Raymond)

Tankage. 1. The act or process of storing oil, etc., in a tank. 2. The price charged or paid for storage in a tank. 3. The capacity of a tank or tanks. 4. The waste residue deposited in lixiviating vats or tanks. (Century)

Tank furnace. A glass-making furnace having a tank instead of the usual pots. (Standard)

Tanque (Mex.). Tank or cistern; *T. de asiento*, a settling tank. (Halse)

Tantalic ocher. A native brown tantalum oxide found in Finland. (Standard)

Tantalite. The member of the tantalite-columbite group of minerals which is composed of nearly or quite pure tantalate of iron and manganese. Nearly all tantalite contains some columbium. The members of the group containing more columbium are known as columbite. Tantalite is very rare. Pure tantalite, $(Fe,Mn)Ta_2O_6$, would contain about 86 per cent Ta_2O_5, or 70.4 per cent tantalum, but the percentage in actual minerals is generally much lower. (U. S. Geol. Surv.)

Tantalum. A metallic element found in various rare minerals. It is isolated as a rather brittle lustrous white metal, with a slightly grayish tint. Symbol, Ta; atomic weight, 181.5; specific gravity, 14.49. (Webster)

Tap. 1. To cut or bore into old workings for the purpose of liberating accumulations of gas or water. 2. To win coal in a new district. (Gresley)
3. The quantity of metal run out from a furnace or cupola at any one time. 4. A tool for forming an internal screw, as in a nut. 5. A small valve. (Webster)

Tapa (Sp.). 1. Cover. 2. Roof or hanging wall. 3. A sort of cofferdam used in placer mining. (Halse)

Tapanhoacanga (Braz.). A gold-bearing gravel composed of the disintegrated and weathered remains of specular iron ore. (Halse)

Tapajos (Sp.). Bandages to cover the eyes of the mules when treading in the *patio* process, or when being loaded or unloaded . (Halse)

Tapar (Mex.). To stop a furnace-tap with clay. (Dwight)

Tapatinga (Braz.). A variegated clay in the Amazon valley. (Halse)

Tap bar. A pointed bar by which a blast furnace tap hole is opened or the metal in a melting pot, etc., is tested. (Standard)

Tap cinder. The cinder drawn from a puddling furnace or bloomery. (Raymond)

Tape. A long, thin, narrow band of mineral or ore. (Standard)

Taper off (Corn.) To stop work temporarily. (Weed)

Taper rope. A rope that has a gradually diminishing diameter from the upper to the lower end. The diameter of the rope is decreased by dropping one wire at a time at regular intervals. Both round and flat ropes may be made tapered, and such ropes are intended for deep-shaft hoisting with a view to proportioning the diameter of the rope to the load to be sustained at different depths. (C. M. P.)

Tapestle (Mex.). 1. A working platform or stage built up in a stope, or anywhere in a mine. 2. A landing place between two flights of ladders. (Dwight)
3. (Colom.) Pillars of ore left to support the wall. (Lucas)

Tapestry brick. Brick made by the stiff-mud process and having all surfaces roughened by wire cutting. Much used now for exteriors. (Ries)

Tap hole. 1. The opening through which the molten metal is tapped or drawn from a furnace. (Winchell)
2. In steel manufacturing, a hole in a cementation furnace for the withdrawal of trial bars for testing. (Webster)
3. In a puddling furnace, a hole for drawing off slag (Standard). Called also Tapping hole.

Tapia (Sp.). A building material made chiefly of clay or earth; sometimes mixed with lime and called Tapia real. (Webster)
2. A mud wall. (Halse)

Tapiador (Sp.). A builder of mud walls. (Halse)

Tapish. 1. (Eng.) To break in "at unawares," as gas. A miner who just escapes with his life is said to be "tapished." (Hunt)
2. (Derb.) To let water out of a mine by tapping the place where the water is confined. (Mander)

Tapón. 1. (Sp.) A plug; a stopper. 2. (Mex.) A penthouse. 3. (Colom.) A kind of dike or dam used in placer mining. (Halse)

Taponear (Colom.). To construct a dike or cofferdam. (Halse)

Taponera (Mex.). A dolly bar. (Dwight)

Tappet; Disc. The collar under which the cam is inserted so as to lift the stamp. (Raymond)

Tapping bar. *See* Tap bar.

Tapping clay. A plastic clay used in plugging the tap hole of a smelting furnace. (Standard)

Tapping the hollows (Eng.). Allowing water or gas, or both, to flow out of old or abandoned workings, often under a great pressure. (Gresley) *See* Tappish.

Taqueador (Colom.). 1. One who fires a blast; a blaster. 2. A tamping bar. (Halse)

Taquia (Peru). Llama dung, used for fuel in roasting and smelting. (Dwight). *Also* Tachia.

Tar. 1. A thick, brown to black, viscous liquid obtained by the distillation of wood, coal, peat, and other organic materials, and having a varied composition according to the

temperature and material employed in obtaining it. (Webster)
2. Soft pitch or thickened petroleum, found in cavities of some limestones. (Roy. Com.)

Tara (Mex.). Tare weight. (Dwight)

Tar-distillate. The paraffin distillate, or distillate containing the paraffin wax. (Bacon)

Tarea. 1. (Mex.) Task; job. It is common in Mexico to engage common laborers by the *tarea*. (Dwight)
2. (Cent. Am.) The duty or capacity of stamps in crushing. 3. (Santo Domingo) A land area equal to 0.1565 acre. (Halse)

Target. The vane, or sliding sight, on a leveling rod. (Webster)

Target rod. A level rod. (Webster)

Tarn (Iceland). A bog; fen; marsh or pool. (Humble)

Tarnish. 1. In mineralogy, the thin film of color, different from that of a fracture, that forms on the exposed surface of a mineral, especially a metallic mineral, as columbite. (Standard)
2. A change of color resulting from exposure to atmospheric action. (George)

Tarnowitz process. A metallurgical process in which large charges of lead ore are roasted at low temperatures in furnaces and treated substantially as in the Carinthian process. The residual containing considerable lead is remelted in special furnaces. *See* Silesian method. (Goesel)

Tarrango (Mex.). A platform in stope or shaft. (Dwight)

Tar water. A tarry, ammoniacal water obtained in the process of cleansing illuminating gas in a condenser. (Standard)

Tar well. A receptacle in which is collected the tarry liquid which separates from the gas when it leaves the condensers. (Century)

Tasco. A fire clay from which melting pots are made. Spelled also Tasko. (Standard)

Tases (Mex.). Masses of ore that have been calcined in the open air or in heaps. (Halse)

Tasmanite. A reddish brown, resinous mineral, disseminated in scales through a laminated shale (combustible shale) from the river Mersey, Tasmania; it has a specific gravity of 1.18 and yields oil on distillation (Bacon). Called also Resiniferous shale.

Tassette (Fr.). A small, sharp-pointed infusible earthenware cone, used in threes to support plates, etc., in a kiln or muffle, in place of a stilt or triangle. (Standard)

Tatham furnace. A stationary crucible furnace for retorting zinc crusts. (Hofman, p. 486)

Tatús (Braz.). Labyrinth-like mine workings. (Halse)

Taurite. A name given by A. Lagorio to a variety of rhyolite, with granophyric or spherulitic texture, rich in soda, and containing aegirite. (Kemp)

Tawite. A granular igneous rock composed essentially of sodalite and pyroxene. (La Forge)

Taxite. Loewinson-Lessing's name for lavas that, on crystallizing, have broken up into contrasted aggregates of minerals so as to present an apparent clastic texture—either banded, *i. e.*, eutaxitic, or brecciated, *i. e.*, ataxitic. (Kemp)

Taxitic. Having separated, during cooling, into small portions differing in texture, color, or composition, and hence having a false appearance of being clastic: said of some volcanic rocks, especially if banded. (La Forge)

Taylor producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 317)

Taylor-White process. A process for giving toughness to self-hardening steels. The steel is heated almost to fusion, cooled to a temperature of 700° to 850° C. in molten lead, further cooled in oil, reheated to 370° to 670° C., and cooled in air. (Webster)

Taza (Mex.). 1. The cup or bowl of an *arrastre*. 2. The crucible of a blast furnace. (Halse)

T-Chisel. A boring tool with its cut-edge made in the form of the letter T. (Gresley)

Tea lead. A term used in Ceylon for lead manufactured into tea-chest lining.

Team shovel. A scraper or large scoop for moving earth, having guiding handles, and drawn by one or more horses. (Standard)

Tear war! (Newc.). A signal that men are ready at the bottom to ascend the shaft. (Min. Jour.)

Teary ground (Corn.). A lode or stratum that breaks easily by reason of many joint planes. (Pryce)

Teaser. 1. (Scot.) An iron rod for stirring a boiler furnace. (Barrowman)
2. The fireman of a furnace in glassworks. (Standard)

Teaze hole. The opening of a glass furnace through which fuel is introduced. (Standard)

Tebbad (Persian). Literally, "fever-wind"; the hot, scorching winds that sweep across the dry sandy plains of Central Asia, carrying clouds of impalpable sand along with them. (Page)

Technologist. One skilled in technology; one who treats of arts, or of the terms of arts. (Webster)

Technology. Industrial science; the science of systematic knowledge of the industrial arts, as of manufactures, metallurgy, etc. (Webster)

Techo (Mex., Sp.). Roof; hanging wall. (Dwight)

Tecoral (Guerrero, Mex.). Deads; attle; waste. (Halse)

Tecozahuitl (Mex.). The Aztec name for yellow ocher. (Halse)

Tecto (Port.). The hanging wall or roof. (Halse)

Tectonic. Pertaining to the rock structures and external forms resulting from the deformation of the earth's crust. (Webster)

Tectonites. A term used by M. E. Wadsworth to include all mineral construction-material for buildings or roads. (Power)

Tedge. In founding, an ingate in a mold. (Standard)

Tee (Eng.). A cross vein meeting a main vein without intersecting it. (Bainbridge)

Teem. 1. To pour as, steel from a melting pot; to fill, as a mold with molten metal. (Webster)
2. (Eng.) Sometimes Tem. To dump rubbish, etc., down a spoil-bank. (Gresley)

Teemer. A pourer of metal. (Standard)

Teeming hole. A pit containing the mold in which crucible steel is cast. (Standard)

Teeming trough (Lanc.). A cistern (or trough) into which the water is pumped from a mine. (Gresley)

Teeth work (Scot.). A system of working coal end-on. (Gresley)

Teguilote (Guerrero, Mex.). Crystalized quartz. (Halse)

Teja (Sp.). A roofing tile. (Dwight)

Tejo (Mex.). Gold or silver ingot. (Dwight)

Tela de Alambre (Sp.). Fine wire cloth. (Dwight)

Telegraph. A trough-shaped chute for conveying coal or slate from the screens to the pockets. (Chance)

Telford. A road pavement having a surface of small stones rolled hard and smooth, distinguished from macadam road by its firm foundation of large stones with fragments of stone wedged tightly in the interstices. (Webster)

Telfordize. To furnish a road with a telford pavement. (Webster)

Tella (Sp.). A working place. (Halse)

Telltale. 1. Any device serving as a warning. 2. A small overflow pipe indicating by dripping when a tank or cistern is full. (Webster)

Tellurium. A rare element analogous to sulphur and selenium, occasionally a native crystalline substance of tin-white metallic luster, but usually combined with metals, as with gold and silver in sylvanite. Symbol, Te; atomic weight, 127.5; specific gravity 6.27. (Webster)

Telluric bismuth. Same as Tetradymite. (Standard)

Telluric ocher. The mineral tellurite, TeO_2. (Webster)

Telluric silver. The mineral hessite. (Webster)

Telluride. A compound of tellurium with another element or radical (Webster). Often rich in gold and silver.

Telluriferous. Yielding, or containing tellurium. (Standard)

Tellurite. Native tellurium oxide, TeO_2, occurring sparingly in tufts of white or yellowish crystals. (Webster). Called also Telluric ocher.

Tellurium glance. Nagyagite. (Webster)

Telpherage. An automatic aerial transportation system, especially that system in which the carriages having independent motors are run on a stout wire conducting an electric current from which the motive power is derived; an aerial electric tramway. (Standard)

Telurio (Sp.). Tellurium; tellurium ore. (Halse)

Temper. 1. To grind and mix plastic materials, such as clay, or the ingredients of mortar. 2. To give the metals (especially steel) the desired degree of hardness and elasticity by a process of heating and cooling, suitably regulated. A metallic compound in which these qualities can thus be produced is said to temper or to take temper. (Raymond)
3. To anneal or toughen glass. (Webster)
4. An alloy composed of two parts of tin and one of copper, added to pure tin to make the finest pewter.
5. An alloy of arsenic and lead sometimes used for hardening shot. (Standard)

Temperature. A condition with respect to heat or cold, especially as indicated by the sensation produced or by the thermometer or pyrometer; degree of heat or cold. (Webster)

Temperature coefficient. A coefficient expressing a quantitative relation between change of temperature and the consequent variation of some other quantity. (Webster)

Tempered. In brickmaking, (a) moistened and worked to the proper consistency, as clay for bricks or molding. (b) Capable of being cut with ease, as bricks made of such clay. (Standard)

Tempered steel. Steel that has been hardened and subsequently tempered by a second lower heating. (Hibbard)

Temperer. One who or that which tempers; specifically, a machine for mingling and thoroughly working potter's clay, brick-clay, mortar, plaster, or other materials. (Standard)

Tempering. 1. The act of reheating and properly cooling a bar of metal to any desired degree of hardness. (C. and M. M. P.)
2. The process of mixing clays preparatory to molding them. (Ries)

Tempering bar. *See* Furgen.

Tempering furnace. A furnace for heating articles in the process of tempering. (Standard)

Tempering machine. A machine for giving large steel plates a uniform and thorough tempering without permitting them to bend or buckle: usually by pressing them between hot masses of iron, or by firmly clamping them between jaws or plates while immersing them in a tempering bath. (Standard)

Tempering oil. A viscous neutral oil, red in color. A steam-refined cylinder stock equivalent to 26° Bé. Hammer oil is used as a heavy tempering oil, and summer black-oil has been recommended for the same purpose. (Bacon)

Tempering oven. An oven for heating glass in the process of annealing; a leer. (Standard)

Tempering wheel. A wheel mounted on a shaft and revolved in a pit after the manner of an *arrastre,* for kneading and tempering clay. (Standard)

Temper screw. 1. A screw by which well-boring tools are hung from the walking beam and connected and lowered as the work progresses. 2. An adjusting screw. (Standard)

Templador (Peru). A low cylindrical stone placed in the center of a patio, and upon which the mule-driver stands. (Pfordte)

Templar (Sp.). To temper steel, etc. (Dwight)

Templet; Template. A gauge, pattern, or mold, commonly a thin plate or board, used as a guide to the form of work to be executed. (Webster)

Ten (No. of Eng.). A certain weight of coal agreed upon between lessor and lessee, upon which a royalty is paid. A ten varies between 48 and 50 tons, or 18¼ Newcastle chaldrons of 53 cwts. (Gresley)

Tenant helve (Eng.). *See* Frontal-hammer.

Tenate (Mex.). A sack or bag or hide, leather, or cloth for carrying ore. (Halse)

Tenatero (Mex.). A man or boy who carries ore in bags or sacks. (Halse)

Tenazas (Sp.). 1. Tongs. 2. Pincers. 3. Large nippers for extracting broken boring tools. 4. A clip for attaching cars to the rope in endless-rope haulage. (Halse)

Tenderfoot (U. S. and Aust.). A newcomer in a comparatively rough or newly settled region, especially when not inured to the hardship or rudeness of the life. (Webster)

Tender roof (Aust.). A mine roof that requires to be well supported. (Power)

Tending chuck. Pouring water into the hole during rock drilling. (Gillette, p. 24)

Tenedor (Sp.). 1. A guardian or trustee; *T. de libros*, a bookkeeper. 2. A table fork. (Halse)

Tengerite. A mineral of doubtful composition, said to be yttrium carbonate. (U. S. Geol. Surv.)

Tennantite; Gray copper ore. Copper-arsenic sulphide, $3Cu_2S.As_2S_3$. Contains 57.5 per cent copper. Composition varies as in tetrahedrite, into which it grades. (U. S. Geol. Surv.)

Tenon. A projecting tongue fitting into a corresponding cavity called a mortise. (C. and M. M. P.)

Tenor. The percentage or average metallic content of an ore, matte, or impure metal. (Weed)

Tenorite. Black oxide of copper in minute black scales, CuO. Contains 79.3 per cent copper (U. S. Geol. Surv.). Called also Black copper.

Tension. A system of forces tending to draw asunder the parts of a body, especially of a line, cord, or sheet, combined with an equal and opposite system of resisting forces of cohesion holding the parts of the body together; stress caused by pulling: opposed to *compression*, and distinguished from *torsion*. (Standard)

Tension fault; Gravity fault. A normal fault.

Tension pulley (Aust.). A pulley around which an endless rope passes mounted on a trolley or other movable bearing so that the slack of the rope can be readily taken up by the pull of the weights. (Power)

Tentadura (Mex.). A sort of assay, made in a horn spoon, in an earthen saucer, or in a wide and shallow vessel of any kind, for the purpose of ascertaining the amount of amalgam present in a sample of argentiferous mud from an amalgamating *patio*. Any assay made by washing or "panning." (Dwight)

Tentale rent (No. of Eng.). A rent or royalty paid by a lessee upon every "ten of coal" that is mined in excess of the minimum or certain rent. *See* Ten. (Gresley)

Tenter (Eng.). A man who has the control or working of an engine or jig, or who looks after the horses in a pit. (Gresley)

Teodolito (Sp.). Theodolite; a surveying transit. (Dwight)

Tepetate (Mex.). 1. Barren rock; attle; deads. 2. Volcanic tuff. 3. Gangue or matrix. 4. Country rock. (Halse) 5. In geology, a secondary volcanic or chemical non-marine deposit, very commonly calcareous, coating the solid rock or penetrating the earthy portions of a district; so-called in Mexico and Central America. (Standard)

Tephrite. In petrology, an aphanitic or aphanophyric igneous rock composed of essential alkali-calcic feldspar, nephelite, and augite, but little or no olivine. Leucite-tephrite contains leucite with or in place of nephelite. (La Forge)

Tephroite. Manganese orthosilicate, $2MnO.SiO_2$. Contains 70 per cent MnO and commonly also small quantities of magnesium, iron, and zinc. (U. S. Geol. Surv.)

Tepostel (Mex.). Oxides of iron and other metals, generally silver bearing. (Halse)

Tepostetes (Sonora, Mex.). Bowlders of specular iron ore found in gold placers. (Dwight)

Tequesquite (Mex.). A native sodium carbonate mixed with some sodium sulphate and common salt, which effloresces, after the rainy season, on the surface of the plains, forming a crust (Century). Also spelled Tequezquite.

Tequio (Mex.). 1. A task set as one day's work. 2. Ore broken from a given place or belonging to a given contractor. 3. In some places, ore not rich enough to sack underground (Dwight)
4. Charges, tax, or duty. (Halse)

Teratolite. A clay from the coal measures of Saxony, formerly supposed to have curative properties. Called also Lithomarge; Terratolite. (Standard)

Terbium. A rare metallic element resembling yttrium. Symbol, Tb; atomic weight, 159.2. (Webster)

Tercero (Sp.). An arbitrator; *T. en discordia*, an umpire between two disputants. (Halse)

Tercio (Mex.). A sack of ore, about 150 pounds weight. A load for a *tenatero*. One-half load for a mule. (Dwight)

Terlinguaite. Oxychloride of mercury, Hg_2ClO. Contains 88.65 per cent mercury. (U. S. Geol. Surv.)

Terminal morain. The transported débris left by a glacier at or near its lower terminus (Standard). *See* Moraine.

Ternary. Consisting of an alloy of three metals; as ternary steel, a steel composed of the usual iron and carbon, alloyed with one other metal. (Webster)

Ternary steel. An alloy steel that contains one alloying element, the term being synonymous with a simple alloy steel. (Hibbard) It contains the one element plus the iron and carbon, hence ternary.

Terne. To coat with an alloy of tin and lead; to make into terne-plate. (Webster)

Terne-plate. A variety of tin plate coated with an alloy of one-third tin, and two-thirds lead. (Raymond)

Terra. The earth. Used as a prefix; as, *terra* cotta. (Webster)

Terra alba. Same as Pipe clay. (Standard)

Terra cariosa. Same as Tripoli. (Standard)

Terrace. 1. A level or nearly level plain, generally narrow in comparison with its length, from which the surface slopes upward on one side and downward on the other side. Terraces and their bounding slopes are formed in a variety of ways, some being aggradational and others degradational. (La Forge)
2. A flaw in marble, commonly cored out and filled up. Also spelled Terras. (Webster)

Terrace epoch. In geology, the earlier part of the Recent or Holocene epoch; also called Terracian: a time of general formation of terraces in the drift-filled valleys of the regions glaciated during the preceding Pleistocene epoch. (La Forge)

Terra cotta. The "baked earth" of the Italians. Kiln-burnt clay assuming a peculiar reddish-brown color fashioned into vases, statuettes and other mouldings. (Roy. Com.)

Terra-cotta clay. A loose term that might include any clay used in the manufacture of terra cotta. (Ries)

Terrain. A variation of terrane.

Terraja (Mex.). A screw cutter. (Dwight)

Terrane. 1. A group of strata, a zone, or a series of rocks. This word is used in the description of rocks in a general, provisional or noncommital sense. (Winchell)
2. A region considered in relation to its fitness for some purpose; an extent of ground or territory. (Standard)

Terranean. Being in, or belonging to the earth. (Webster)

Terraplén (Mex.). Embankment; a graded roadbed; a terrace. (Halse)

Terra ponderósa (L.). Literally "heavy earth"; another name for heavy spar or barite. (Page)

Terra rossa. Red earth due to the weathering of rocks. (Webster)

Terras. In marble-working, a defective or disfigured place in a marble block, which is cut out and filled with a composition (Standard). Also spelled Terrace.

Terra sienna. *See* Ocher.

Terrene. 1. The earth's surface; the earth. 2. In surveying, the surface of the ground. (Webster)

Terreno (Sp.). 1. Land; *T. franco*, land that can be freely conceded by the State for the mining industry. 2. A geological formation, or a group of formations; *T. acuífero*, quicksand; *T. carbonifero*, a carboniferous formation; *T. movedizo*, very soft or loose formation of rocks. (Halse)

Terreplein. An embankment of earth with a broad, level top, which is sometimes excavated to form a continuation of an elevated canal across a valley. (Webster)

Terrero (Sp.). 1. A heap of earth. 2. Waste rock; attle; a mine dump. 3. A deposit of earth accumulated by the action of water. (Halse)

Terrestrial. Consisting of or pertaining to the land in distinction from water. (Webster)

Terre verte. Glauconite, or the similar mineral celadonite, used as a green pigment by artists. (Webster)

Terrigenous. Produced from or of the earth; in geology, deposited in or on the earth's crust. (Standard)

Terrorite. An extra-strong high explosive of the nitroglycerine type. (Standard)

Terroso (Sp.). Earthy. (Halse)

Tertiary. The earlier of the two geologic periods comprised in the Cenozoic era, in the classification generally used. Also the system of strata deposited during that period. (La Forge)

Teschenite. A name given in 1861 by Hohenegger to a group of intrusive rocks in the Cretaceous strata near Teschen, Austrian Silesia. They have, however, been since shown to embrace such a variety of types that the name has little value, but as analcite occurs quite constantly in most of them many still use the term for diabasic rocks with this mineral. (Kemp)

Tessellated. **1.** A surface divided in squares, or figures approaching squares, by joints or natural divisions. (Roy. Com.)
2. Composed of tesseræ or small cubes of stone, marble, glass, or terra cotta variously colored and arranged in artistic design; inlaid; mosaic; as *tessellated* pavement. (Standard)

Tessera. A small cube or square, as of stone or glass, for making mosaic or tessellated pavements. (Standard)

Tesseral. In crystallography, same as isometric. (Standard)

Test. **1.** A cupel, or cupelling hearth, for refining precious metals; also, a particular portion of metal refined for the purpose of isolating and weighing its gold and silver. *See* Cupel. **2.** A procedure or reaction employed to recognize or distinguish any particular substance or constituent of a compound. **3.** To refine as gold or silver; to subject to cupellation. (Webster)
4. An apparatus for proving light hydrocarbon oils by heat, to find the temperature at which they evolve explosive vapors; an oil test. (Century)

Testefas. A Russian illuminating oil that possesses a specific gravity of 0.820 to 0.823 and a flash-point of not below 38° C. (Bacon)

Testera. **1.** (Sp.) A dike interrupting the course of a lode. **2.** A solid bed of mineral having two faces exposed; *T. de guía*, a gallery driven along a deposit. **3.** Front of a blast furnace. (Halse)
4. *Testeras* (Mex.). Uprights in a mine, whether pillars, arches, or posts. (Dwight)

Test hole. **1.** A tap hole, as in a cementation-furnace. (Standard)
2. A drill hole or shallow excavation for testing an ore body; a test pit.

Test lead. Lead free from any silver, and often finely granulated, used in testing or cupelling, assaying, etc. (Webster)

Test paper. A chemically prepared paper that changes color when brought into contact with certain substances, particularly acids and alkalies (George). *See* Litmus paper.

Test pit. A shallow pit sunk in search of mineral. (Weed)

Test plate. A white plate or tile on which to try vitrifiable colors by heat. (Standard)

Test ring. An oval iron frame for holding a test or movable cupelling hearth. (Raymond)

Test tube. A tube for simple chemical tests, usually a plain tube of thin glass closed at one end, but sometimes having a foot, bulb, graduated scale, or other modification. (Webster)

Testudo (L.). A large shield-like shelter used by miners while working in places likely to cave in. (Standard)

Tetartohedral. Having one fourth the number of planes requisite to the symmetry of a crystal. (Webster)

Tetrachloride. A chloride having four atoms of chlorine in the molecule. (Webster)

Tetradymite. Bismuth telluride, $Bi_2(Te,S)_3$. Contains theoretically 51.9 per cent bismuth, but the actual content ranges from 50.4 to 52.8 per cent. Sulphur generally replaces part of the tellurium, and the mineral sometimes contains a trace of selenium. The sulphurous variety contains from 57.7 to 62.2 per cent bismuth and may be represented by the formula $2Bi_2Te_3.Bi_2S_3$. Gold, copper, and iron are present in some tetradymites. (U. S. Geol. Surv.)

Tetragonal. Designating, or belonging to, a system of crystallization having all three axes at right angles and the two lateral axes equal. (Dana)

Tetragonal system. That system of crystals in which the forms are referred to three mutually perpendicular axes, two of which are of equal length and the third longer or shorter. (La Forge)

Tetrahedrite; Gray copper ore. Copper-antimony sulphide, essentially $3Cu_2S.Sb_2S_3$. Contains 52.1 per cent copper. In many tetrahedrites the copper is partly replaced by iron, lead, zinc, mercury, and silver, and the antimony by arsenic. Through the last replacement tetrahedrite grades into tennantite (U. S. Geol. Surv.). Called also Fahlerz.

Tetrahedron. A crystal form, in the isometric system, enclosed by four faces having equal intercepts on all three axes. (La Forge)

Tetrahexahedron. A crystal form of the isometric system bounded by twenty-four equal triangular faces, four to each face of the cube. (Dana)

Tewel. 1. A hole; a bore; a chimney, as for smoke. 2. The tuyère of a furnace. (Webster)

Textura (Sp.). Texture. (Dwight)

Texture. The character, arrangement, and mode of aggregation of the fragments, particles, or crystals that compose a rock; the sum total of those features of a rock which determine its physical structure and appearance as a rock.
Texture and *structure* have been and still are used more or less interchangeably, but there is a growing and commendable tendency to confine *structure* to the features that characterize the rock mass, as a part of the earth's crust, and *texture* to those that characterize the particular specimen, as a piece of rock. Thus the *structure* of a rock may be, for example, stratified or slaty or brecciated, and its *texture* may be, for example, clastic or crystalline or glassy. (La Forge)

Thalassic rocks. Strata formed in deep, still water, far from shore lines, generally composed of very fine particles of material; contrasted with Littoral rocks. (Standard)

Thallium. A rare metallic element of the aluminum group, resembling lead in physical properties. Symbol, Tl; atomic weight, 204.0; specific gravity, 11.8 (Webster). Used in alloys and glass-making.

Thallium glass. A variety of flint glass of great density and refracting power; made by using thallium in place of lead. (Standard)

Thanet sands. The lowest beds of the Eocene Tertiary in England. (Standard)

Tharu. A gold-washing race in Champaran, Nepal, Northern India. (Lock)

Thaw house. A small building, designed for thawing dynamite, of such size as to provide enough thawed dynamite for the day's work. Thawing houses should be heated either with hot water or exhaust steam in such a manner that the explosives can not come in contact with the heated metal or lie directly over the heated metal. (Du Pont)

Thawing. The warming of frozen dynamite until it becomes soft and plastic. Thawing should be done carefully, slowly, and according to directions issued by the manufacturers of the explosives. (Du Pont)

Thawing kettle. A double kettle, built somewhat like a farina boiler, having two compartments, an outer compartment, which is filled with hot water and which entirely surrounds the inner compartment that contains the dynamite to be thawed. It is provided with a lid for retaining the heat. (Du Pont)

Theats (Scot.). A horse's draw-chains. (Barrowman). Trace chains.

Thenardite. A native sodium sulphate, Na_2SO_4. (U. S. Geol. Surv.)

Thenard's blue. Same as Cobalt blue.

Theodolite. An instrument for measuring horizontal, and usually also vertical, angles. It consists of a telescope mounted so as to swivel vertically in Y's secured to a revolvable table carrying a vernier for reading horizontal angles. There is usually a graduated arc, or circle of altitudes. A horizontal compass is commonly included. (Webster)

Theralite. A granular igneous rock composed essentially of andesine, nephelite, and pyroxene, with or without a little hornblende, biotite, or olivine. (La Forge)

Thermal. Hot; warm. Applied to springs which discharge water heated by natural agencies. (Thompson)

Thermal conductivity. Capability to conduct heat; the quantity of heat that passes in unit time through a unit area of a plate whose thickness is unity when its opposite faces differ in temperature by one degree. (Webster)

Thermal unit. A unit chosen for the comparison, or calculation, of quantities of heat, as the calorie or the British thermal unit. (Webster)

Thermite; Thermit. A mixture of aluminum in fine grains or filings with some metallic oxide, usually of iron or chromium; on being heated by a priming, as of magnesium powder, the aluminum combines violently with the oxygen of the oxide, setting free the metal, producing a fluid slag, and generating great heat. Is used in welding steel. (Webster)

Thermite process. The process of welding steel with thermite. Also known as Goldschmidt's process. (Webster)

Thermites. A term used by M. E. Wadsworth to include mineral fuels or burning-materials. (Power)

Thermoaqueous. Produced by, or related to, the action of heated waters. (Raymond)

Thermochemistry. That branch of chemical science which treats of the relations existing between chemical action and heat. (Webster)

Thermodynamics. The science which treats of the mechanical action or relation of heat. (Webster)

Thermoelectricity. Electricity produced by the direct action of heat, as by the unequal heating of a circuit composed of two dissimilar metals. (Webster)

Thermometamorphism. Metamorphism in which the dominant agency is heat. (Watson, p. 204)

Thermometer. Any device for measuring temperature. *See also* Pyrometer.

Thermopile. An apparatus consisting of a number of thermoelectric couples, used to generate electric currents for determining slight differences of temperature. (Webster)

Thermostat. An automatic device for regulating temperature by utilizing the expansion of solids, liquids, or gases, subjected to heat, as in opening or closing the damper of a furnace, regulating the supply of gas, etc. (Webster)

Thetis' hair-stone. An old name for rock crystal containing acicular crystals of actinolite. (Chester)

Thick coal; Thick seam (Eng.). A coal seam of greater thickness than (say) 8 or 10 feet (sometimes as much as 130 feet), or those which are worked in two or more stages or lifts. (Gresley)

Thickened oils. Mineral oils thickened by dissolving in them small amounts of vulcanized rubber or of aluminum soap; they are intended for certain lubricating purposes. (Bacon)

Thickness. 1. The distance at right angles between the hanging and the foot wall of a lode or lens. 2. In founding, material, as loam, set in a mold to a certain thickness, to be partially displaced by a templet. (Standard)

Thies process. A chlorination process for recovering gold from its ore. For each ton of ore in a revolving drum, 130 gallons of water, 30 pounds chloride of lime, and 36 pounds concentrated sulphuric acid are added, and the drum revolved for some time. A solution of chloride of gold is thus obtained. The silver remains as an insoluble chloride; which can be separated by the addition of sodium hyposulphite solution. (Goesel)

Thill. 1. (Newc.) The floor of a coal mine. (Raymond)
2. A thin stratum of fire clay. (Webster)

Thimble. 1. An oval iron ring around which a rope end is bent and fastened to form an eye. (C. M. P.)
2. (Aust.). The iron ring, placed a few feet below the head-frame pulley, which supports the safety detaching hook in case of an overwind. (Power)
3. A metal socket for fixing a lead pipe to stoneware. (Webster)

Thimble joint. A sleeve joint packed to allow longitudinal expansion. A slip expansion joint. (Nat. Tube Co.)

Thing. 1. (No. Staff.) A straight facing from floor to roof, often many yards in length. 2. (Mid.) A fault slip. (Gresley)

Thinolite. A tufa deposit of calcium carbonate occurring on an enormous scale in northwestern Nevada; also occurs about Mono Lake, California. It forms layers of interlaced crystals of a pale yellow or light-brown color and often skeleton structure except when covered by subsequent deposit of calcium carbonate. (Dana)

Thin out. Applied to beds or strata which grow gradually and continually thinner in one direction, until they entirely disappear. (Thompson)

Thin seam; Thin coal (Eng.). A coal seam less than 3 feet in thickness. (Gresley)

Thin section. A fragment of rock or mineral ground to paper thinness, polished, and mounted between glasses as a microscopical slide. Rocks and most minerals except the oxides and sulphides of the metals are translucent to transparent in thin section and the optical properties of each mineral can be studied with the miscroscope. (Ransome)

Thin stock. Slabs of stone employed for wainscoting, flooring, etc. (Bowles)

Third-hand asistant (Aust.). A boy who helps the machinist and his assistant with a coal-cutting machine. (Power)

Thirl; Thirling. 1. (Scot.) A cross-hole or ventilation-passage between two headings. 2. In the North of England lead mines, a mark at the end of a pitch or set (Standard). *See* Thurl; Thurling.

Thirling. *See* Thirl.

Tholeiite. Rosenbusch's name for augite-porphyrites, which, aside from the usual phenocrysts, have a groundmass, with but one generation of crystals and with a little glassy basis between them, affording a texture called intersertal. (Kemp)

Thomäite. A variety of siderite that is found massive and in pyramidal crystals. (Standard)

Thomas-Gilchrist process. Bessemerizing (which *see*) pig iron, high in phosphorus and low in sulphur, in a converter lined with calcined dolomite. The slag formed consists of a basic calcium phosphate which is used for fertilizer (Liddell). A basic-lining process.

Thompsenolite. A fluoride of calcium, aluminum, and sodium, $NaCaAlF_6 \cdot H_2O$. (Webster)

Thompson process. A process of electric welding in which heat is developed by a large current passing through the metal. (Webster)

Thomsonite. Hydrous sodium-calcium-aluminum silicate. $(Na_2Ca)O.Al_2O_3.2SiO_2.2\frac{1}{2}H_2O$. One of the zeolites, sometimes used as a gem. (U. S. Geol. Surv.)

Thoria. The oxide of thorium, ThO_2.

Thorianite. A mineral of complex and uncertain composition but consisting chiefly of thorium and uranium oxides with minor quantities of many other bases. Contains about 12.1 per cent U_3O_8 and 71 per cent ThO_2. (U. S. Geol. Surv.)

Thorite. 1. A rare mineral of a brown to black color, consisting essentially of thorium silicate, $ThSiO_4$. 2. A high explosive used as a bursting charge for shells. (Webster)

Thorium. A comparatively rare metallic element occurring in combination in thorite, monazite, and certain other minerals and isolated as an infusible, gray, metallic powder. Symbol, Th; atomic weight, 232.4; specific gravity, 11.1. (Webster)

Thorofare. In geology, a channel cut across a spit or barrier beach. (Watson, p. 388)

Thorogummite. A hydrous silicate of uranium and thorium, $UO_3.3ThO_2.3SiO_2.6H_2O$. Contains 22 per cent UO_3 and 41 per cent ThO_2. (U. S. Geol. Surv.)

Thrackscat (Eng.). Metal or mineral still in the mine. (Standard). An obsolete term.

Thread. 1. An extremely small vein, even thinner than a stringer. (Roy. Com.)
2. (Mid.) A small wooden wedge; *see* Cleat, 3. 3. A more or less straight line of stall faces, having no cuttings, loose ends, fast ends, or steps. (Gresley)

Three-high train. A roll-train composed of three rolls, the bar being entered on one side between the bottom and the middle roll, and on the other side between the middle and the upper roll. The passes in both directions thus take place without reversing the movement of the rolls, as is done in so-called reversing rolls. (Raymond)

Threeling. In crystallography, a group of three crystal individuals united by the same twinning law. (Standard)

Three-quarter coal. A mixture of lump and nut coal. (Nicolls)

Three trees (Eng.). A kind of ladder used in mines. (Bainbridge)

Throstlebrest (Derb.). An ore with much gangue adhering, so that it requires a great deal of knocking or breaking to make it marketable (Hooson). Also spelled Throstle-breast.

Throttle. 1. To obstruct the flow of, as steam to an engine. 2. A valve for regulating the supply of steam, gas or air to an engine. (Webster)

Through; Thirling. A passage cut through a pillar to connect two rooms. (Ihlseng)

Through and through (Wales). Mining bituminous coal without regard to the size of the lumps (Gresley). *See* Through coal.

Through Coal. (Wales). Large and small coal mixed: altogether coal; run of mine.

Througher (Scot.). A crosscut between two headings. (Gresley)

Through stone. A stone passing entirely through the thickness of a wall; a bond-stone; perpend. (Standard)

Throw. 1. A fault, a dislocation. (Chance)
2. The amount of vertical displacement up (upthrow) or down (downthrow) produced by a fault; sometimes, loosely; a dislocation not vertical, the direction being specified (Webster). *See* Heave; Perpendicular throw; Stratgraphic throw. (Lindgren, p. 120)
3. In ceramics, to form or shape on a throwing engine, or potter's wheel, as earthen vessels. (Webster)
4. (Local Eng.) To break out the pillars (a coal mine), leaving the hanging coal unsupported. *See* Spur, 1. (Standard)

Throw crook. A potter's wheel; throwing table. (Standard)

Thrower. One who uses a throwing wheel; a potter. (Standard)

Throwing (So. Staff.). The operation of breaking out small pillars, so as to leave the hanging coal unsupported, except by its own cohesion. (Raymond) *See* Throw, 4.

Throwing clay. Clay plastic enough to be shaped on a potter's wheel. (Standard)

Throwing engine. 1. A potter's wheel with its supports, used in throwing (Webster). Called also Throwing machine; Throwing mill; Throwing wheel. 2. *See* Throw, 3.

Throwing house. A building in which clay is thrown on potters' wheels. (Standard)

Throwing table. A potter's wheel. (Standard)

Thrown. 1. Faulted or broken up by a fault. (Gresley)
2. Turned, as a piece of ceramic ware on a potter's wheel. (Standard)

Throw-off. A kind of derailing switch. (Webster)

Throw-off switch (Aust.). A switch by means of which an obstruction is thrown across the rails of a track, causing the derailment of the trucks (Power). A derailing switch.

Thrust. 1. A crushing of coal pillars caused by excess weight of the superincumbent rocks, the floor being harder than the roof. Nearly the same as creep, except that in the latter the workings are disorganized by the upheaval of the floor, which being softer than the roof is the first to yield. *Compare* Creep. (Century)
2. The ruins of the fallen roof, after pillars and stalls have been removed. (Raymond)

Thrust fault. *See* Fault.

Thrust plane. The plane of a thrust or reversed fault. (La Forge)

Thud (Eng.). A dull and heavy report made by the rending of the strata far overhead when the coal has been extracted. (G. C. Greenwell)

Thulite. A pink mineral of the epidote group, which owes its color to the presence of manganese (Ransome). *See also* Zoisite.

Thulite stone. A pink or rose-colored siliceous rock from Norway, composed chiefly of quartz and thulite; used for small ornaments. (Standard)

Thulium. A rare metallic element resembling ytterbium, found in combination in gadolinite. Symbol, Tm; atomic weight, 168.5. (Century)

Thum-Balbach process. A silver-refining process using carbon cathodes, doré anodes, and a silver-nitrate nitric-acid electrolyte. The silver is scraped off the bottom as crystals. (Liddell)

Thum furnace. A gas-fired furnace especially for the treatment of zinc ore which is high in lead. (Ingalls, p. 492)

Thunderbolt. 1. A stone or stony concretion, especially if elongated and tapering, found in the ground and ignorantly supposed to have fallen from the sky. 2. A nodule or mass of iron pyrite found in English chalk formations. (Standard)

Thunder stone. Same as Thunderbolt.

Thuringian. In geology, designating the upper division of the European Permian. (Webster)

Thurl (So. Staff.). To cut through from one working into another (Raymond). *Also* Thirl.

Thurling. A passage cut from room to room, in post-and-stall working (Raymond). *Also* Thirling.

Thurm. 1. In mining, a small displacement or fault of a seam. (Standard)
2. (Nova Scotia) A ragged, rocky headland swept by the sea; also called Thurm cap. (Century)

Thwack. In tile making, to beat into shape. (Webster)

Thwacker. One that thwacks; specifically, in tile making, a wooden implement with which the half-dried pantile is beaten to take out any warping that has occurred. (Webster)

Thwacking frame. A table, with curved top, used in thwacking a pantile. (Standard)

Thwacking knife. A knife used to trim pantiles after thwacking. (Standard)

Thwarting (Som.). A short road driven between two or more veins where they are nearly vertical. (Gresley)

Tiatales (Guerrero, Mex.). A hard limestone. (Halse)

Tibe (Colom.). 1. A hard, smooth, flat or rounded stone, found in alluvial mines. 2. Corundum, used by the ancient Indians for polishing tools. (Halse)

Tibir (Sp.). Gold dust found on the African coast. (Halse)

Ticket. 1. (Scot.) An old measure for coal. The Campbeltown ticket was about 300 pounds. (Barrowman)
2. (Eng.) A sealed bid for ore to be sold. (Webster)
3. The numbered check which the miner puts on his loaded car to inform the weigh master to whom the coal belongs (Roy.). *See also* Tag; Tally.

Ticketing. In English mining districts, a periodical sale of ore to the highest bidders by ticket. *See* Ticket, 2. (Standard)

Tick hole. A small cavity in a rock; a vug.

Tidewater glacier. A glacier whose foot dips into tidewater, and which often produces icebergs. (Standard)

Tie. 1. A beam, post, or rod to hold parts together; a tension member in a structure. 2. Any of the transverse supports to which railroad rails are fastened. (Webster)
3. (Eng.). A level; also, a support for the roof in coal mines. (Bainbridge)

Tie-back. 1. A beam serving a purpose similar to a fend-off beam, but fixed at the opposite side of the shaft or inclined road. 2. The wire ropes or stayrods that are sometimes used on the side of the tower opposite the hoisting engine, in place of or to reinforce the engine braces. (C. and M. M. P.)

Tie band (Eng.). A piece of rope used in securing long timbers or rails when being sent down in the cage. (G. C. Greenwell)

Tiebar. A bar used as a tie, as between two switch rails to hold them to gage. (Webster)

Tiemannite. Mercuric selenide, HgSe. Contains 71.7 per cent mercury and 28.3 per cent selenium. (U. S. Geol. Surv.)

Tienda de raya (Sp.). A store at which the miners obtain weekly credit. (Min. Jour.)

Tie plate. A protecting metal plate between the rail and tie. (Webster)

Tie rod. A round or square iron rod passing through or over a furnace and connected with buckstaves to assist in binding the furnace together.

Tierra (Sp.). 1. Earth, land, soil, ground; *T. arcillosa*, clay ground. 2. Region of the earth; *T. adentro*, the interior of a country. 3. Any rock or mineral; *T. blanca* (Mex.) a calcareous tufa; *T. de batan*, fuller's earth; *T. de flor* (Venez.) A bed of reddish clayey earth; *T. de porcelana*, china clay; *T. pesada*, heavy spar (Halse)
4. (Mex.) Fine sized ore. (Dwight)

Tierra blanca (Sp.). White, chalky, limestone beds, having special value for hydraulic cement. (Standard)

Tierras (Sp.). 1. Fine material impregnated with quicksilver ore, which must be made into adobes before roasting. (Raymond)
2. *T. de labor*, rock from a stope mixed with particles of ore; fines; *T. de yunque*, smalls produced in breaking and sorting ore; *T. Pardas* (Mex.) An alluvial formation containing limonite; *T. rojas*, a ferruginous clay. 3. Ore generally in a fine state of division. 4. Gangue or matrix. (Halse)
5. Any low-grade, powdered ore. (Standard)

Tiers-argent (Fr.). An alloy of one part of silver to two of aluminum. (Standard)

Tier saw. A saw for giving bricks curved outlines. (Standard)

Tiesteros (Bol.). Men who make tests or assays of ore before amalgamation (Halse). Assayers.

Tiff. 1. A common name for calcite in Wisconsin and Missouri zinc fields. 2. Barite in southeast Missouri.

Tiffanyite. A name proposed by Kunz for a hydrocarbon assumed to be present in certain diamonds, namely, those which, on this account, exhibit fluorescence and phosphorescence. (Bacon)

Tiger. A device, as a fork, for supporting a continuous series of well-boring rods or tubes while raising or lowering them in the hole (Standard). *See* Nipping-fork.

Tiger-eye. 1. A chatoyant stone, usually yellow-brown, much used for ornament. It is silicified crocidolite, in which the fibers penetrating the quartz are changed to oxide of iron. 2. A potter's glaze resembling in look the tiger-eye. (Webster)

Tightset. A quarrymen's term, equivalent to blind seam, or incipient joint. (Dale)

Tile. 1. A thin plate or piece of baked clay, stone, or the like of a kind used for covering roofs of buildings, for floors, for drains, and often for ornamental work. 2. A small flat piece of dried earth or earthenware, used to cover vessels in which metals are fused. (Webster)

Tile copper. Copper obtained by roasting and refining the metal bottoms that collect under the regulus in smelting certain impure ores; usually cast in flat rectangular plates, hence its name (Standard). *See* Bottoms, 2.

Tile earth (Prov. Eng.). A compact clay soil. (Standard)

Tile field. A field or yard, as at a pottery, devoted to the construction of tiles. (Standard)

Tile kiln. A kiln for vitrifying tiles. (Standard)

Tile machine. A machine for making tubular or arch-shaped tiles from clay, operating by forcing the raw material through a die, in a continuous stream, which is cut into suitable lengths by wires. (Standard)

Tile ore. A massive variety of cuprite, of brick-red color. (Chester)

Tile oven. An oven for burning tiles. (Standard)

Tiler. 1. A kiln or oven for baking tiles. 2. A maker or layer of tiles. (Standard)

Tilery. A factory in which tiles are made. (Standard)

Tilestone. 1. Any of several beds of shale or sandstone, often red in color, belonging to the upper part of the Ludlow group, English Upper Silurian. (Webster)
2. A tile, particularly of stone; a brick. (Standard)

Tile works. A tilery or tile field. (Standard)

Tilgate stone. Beds of calcareous sandstone or ironstone near Hastings, England. (Century)

Till. That part of a glacial drift consisting of material deposited by and underneath the ice, with little or no transportation and sorting by water; it is a generally unstratified, uncon-

solidated, heterogeneous mixture of clay, sand, gravel, and bowlders. Also called Bowlder-clay (La Forge). Two kinds are recognized: (1) *Glacier-till*, deposited directly by glacier-ice, not by glacier-waters, though it may be locally modified by them. Contrasted with Glacier-sediment. It may be (a) englacial (carried within the ice-mass), (b) superglacial (borne on the ice surface), or (c) subglacial (dragged along beneath the glacier), and in this case called also Ground-moraine or Bowlder-clay. (2) *Berg-till*, detrital matter deposited by icebergs. Called also Subaqueous till or Floe-till. (Standard)

Tiller (Eng.). An instrument similar to a brace head, but usually made of iron, for turning drill tools. (Gresley)

Tiller rope. A flexible wire rope composed of six small ropes, usually of seven-wire strands each laid about a hemp core. (C. M. P.)

Tillite. A sedimentary rock composed of cemented till. (La Forge)

Tilt. 1. To hammer or forge with a tilt (trip) hammer. (Webster) 2. A tilt hammer. (Standard)

Tilted steel. Hammered steel. (Standard)

Tilter. 1. One who forges metal with a tilt-hammer. 2. A tilt hammer. (Standard)

Tilt hammer. A hammer for shingling or forging iron, arranged as a lever of the first or third order, and "tilted" or "tripped" by means of a cam or cog-gearing and allowed to fall upon the billet, bloom, or bar. (Raymond)

Tilt mill. A mill where metal, as steel, is tilted. (Webster)

Timazite. A name given by Breithaupt to certain porphyritic rocks in the Timok Valley of Servia, that have since proved to be varieties of andesite and dacite. (Kemp)

Timba (Sp. Am.). Logs used for the roof of a mine. (Halse)

Timber. 1. Any of the wooden props, posts, bars, collars, lagging, etc., used to support mine workings. 2. To set or place timbers in a mine. 3. One of the steel joists or beams, which have in some mines replaced wooden timbers. (Webster)

Timberer; Timberman. One who cuts, frames and puts in place any of the timbers used in a shaft, slope, mine or tunnel. Also one who draws props, posts, etc.

Timbering. 1. (Eng.) The timber structure employed for supporting the faces of an excavation during the progress of construction (Simms) 2. Timber work taken collectively, as in a mine. (Standard)

Timberline. The height on mountains at which the growth of trees stops. It varies with the latitude and climate. (Webster)

Timberman. *See* Timberer.

Timber packer (Washington). A laborer who delivers timber to the working place in a pitching or inclined coal seam.

Timber rights. The right to cut timber on the public domain for use in the mining industry. (U. S. Min. Stat., pp. 1334–1353)

Timbre (Mex.). 1. A bell. 2. A stamp tax. (Dwight)

Timbrero (Mex.). Bell man. (Dwight)

Time. 1. A statement of the number of days or hours worked by, or of the amount of wages due a workman; usually furnished him upon request in the event of his quitting work before the regular pay day. 2. To count the strokes of a pump, or revolutions of an engine or fan. C. and M. M. P.)
3. In geology, a general term indicating a subdivision of one of the grander divisions of geological history; as, Palezoic *time*. (Standard)

Timekeeper. One whose duty it is to make and keep a record of the number of hours or days worked by laborers or other employees.

Timpa (Sp.). A tymp stone in front of the hearth of a blast furnace. (Halse)

Tin. 1. A chemical element obtained as a soft, lustrous white, crystalline metal, malleable at ordinary temperature but brittle when hot. Symbol, Sn; atomic weight, 118.70; specific gravity, 7.28. (Webster)
2. To coat with tin; as to *tin* iron.
3. Tin plate. (Standard)

Tina (Mex.). 1. A mine bucket or tub. 2. A leaching vat (Dwight); *T. cargadora*, a tank into which the slimes are first discharged. (Eglesston)

Tinaco (Sp.). A wooden trough, tub, or vat, used in leaching. (Halse)

Tinaja (Mex.). 1. A basin of water in a rock. (Dwight) 2. A large earthen jar. 3. Small bunches of cinnabar. (Halse)

Tin bath. Molten tin into which sheets of iron are dipped in order to form tin plate. (Standard)

Tin bound. 1. (Corn.) To mark a limit, as on a tract of waste land, within which one claims or reserves the right to mine unworked tin ore. 2. Land so reserved. (Standard)

Tincal. Crude native borax, formerly imported from Tibet (Webster). Also spelled Tinkal.

Tincalconite. A pulverulent variety of borax, with thirty-two per cent of water. (Chester)

Tin-can safety lamp. A Davy lamp placed inside a tin can or cylinder having a glass in front, air holes near the bottom, and open-topped. (Gresley, 1883)

Tinca (Peru). A small mine timber. (Pfordte)

Tinder ore. An early name for an impure variety of jamesonite, resembling tinder. (Chester)

Tin dish. A pan used by prospectors for washing gold-bearing materials and extracting the gold. (Duryee)

Tin floor. 1. (Corn.) A thin flat mass of tinstone between beds of rock. 2. An irregular mass of tin ore. (Standard)

Tin foil. Tin or a tin-like alloy made into foil. (Standard)

Tin frame (Corn.). A sloping table used in dressing tin-ore slimes and discharged by turning it upon an axis till its surface is nearly vertical, and then dashing water over it, to remove the enriched deposit. A machine frame or self-frame thus discharges itself automatically at intervals; a hand-frame is turned for the purpose by hand. (Raymond)

Ting. Same as Sycee-silver. (Standard)

Tin glass. A name formerly applied to bismuth. (Ure)

Tin glaze. An opaque glaze of stannic oxide, used on pottery. (Standard)

Tinguaite. A variety of phonolite rich in aegirite (La Forge). A name given by Rosenbusch to rocks consisting of alkali feldspar, nephelite and abundant aegirine, which form dikes in or near areas of nephelite-syenite. It was first applied to specimens from the vicinity of Rio Janeiro, where in the Serra de Tingua the rocks were first discovered and described by O. A. Derby as phonolites. They have since proved of very wide distribution and not always to accompany nephelite-syenites. By many the name tinguaite is regarded as an unnecessary and undesirable synonym for Phonolite. (Kemp)

Tinker (Derb.). Laminated carbonaceous shale. (Gresley)

Tin liquor. A solution of tin in strong acid, used as a mordant in dyeing. (Century)

Tinned rope. Rope made of wires that have been coated with tin to protect them from corrosion. (C. M. P.)

Tinned sheet iron. *See* Tin plate.

Tinner. 1. (Corn.). One who works in a tin mine. 2. A tinsmith. (Webster)

Tinning. 1. The act, operation, or process of covering with or preserving in tin. 2. A protective coating of tin, as on sheet iron. (Standard)

Tinning metal. An alloy of equal parts of tin and lead: used by electrotypers for coating copper shells before backing. (Standard)

Tin penny (Eng.). A local tax formerly paid for permission to engage in tin mining. (Standard)

Tin pickling. In the manufacture of tin plate, the process of immersing thin iron plate in a bath of acid, previous to tinning. (Standard)

Tin-pickling machine. A machine for hoisting and lowering the plates in the process of pickling and washing. (Standard)

Tin plate. Sheet iron or steel coated with tin by dipping into the melted metal: commonly called simply Tin. There are three principal qualities: the best, consisting of coated charcoal iron, is called Charcoal plate; that which is coated on coke-smelted or puddled iron is called Coke plate, and tin plate having crystals formed by the action of diluted nitric and hydrochloric acids is called Crystallized tin plate. (Standard)

Tin pot. 1. A vessel for holding molten tin. 2. A bath of molten tin in which sheet-iron or sheet-steel is dipped in making tin plate. (Standard)

Tin pyrités. Same as Stannite. (Standard)

Tinsel. To give a metallic appearance to (ceramic ware) by washing with a metallic substance. (Standard)

Tin spar. A synonym for Cassiterite. (Chester)

Tinstone. A miner's name for Cassiterite. (Standard)

Tin stuff (Eng.). Tin ore mixed with its gangue. (Standard)

Tintero (Peru). The sump of shaft. (Dwight)

Tin-white cobalt. A synonym for Smaltite. (Chester)

Tin-witts (Corn.). The product of the first dressing of tin ores, containing, besides tinstone, other heavy minerals (wolfram and metallic sulphides). It must be roasted before it can be further concentrated. Its first or partial roasting is called rag-burning. (Raymond)

Tin works. A place or an establishment where tin is manufactured or mined. (Standard)

Tip; Tipple (Eng.). A platform upon which a pair of iron tram rails, fixed upon an axle and attached to a lever, are bolted down, for emptying tubs or cars into wagons, boats, bins, etc. (Gresley)

Tipper. 1. An apparatus for emptying cars of coal or ore, by turning them upside down and then bringing them back to the original position with a minimum of manual labor. Tipple is the common name. (Steel)
2. (Aust.) The man who runs skips into a tippler. (Power)

Tipple. 1. The place where cars are tipped or dumped; the dump; a cradle-dump. (Chance)
2. (Aust.) The tracks, trestles, screens, etc., at the entrance to a colliery where coal is screened and loaded (Power). *See* Tipper, *also* Tip.

Tippler (Aust.). An apparatus for tipping a skip, so as to empty it of its contents (Power). *See also* Tip; Tipper, and Tipple.

Tirada (Sp.). 1. Hoisting of a cage. 2. One complete hoist. (Halse)

Tirante (Sp.). 1. Small hewn timber. 2. The tie rod of a boiler. 3. A pump rod. 4. (Mex.) A large beam. (Halse)

Tirar (Sp.). 1. To hoist or wind. 2. To blast or shoot. 3. *T. una labor* (L. Cal., Mex.), prospecting; placer mining. (Halse)

Tiro (Mex.). 1. Mine shaft or pit; *T. de arrastre*, or *de recueste*, an inclined shaft; *T. general*, the main shaft; *T. vertical*, a vertical shaft; 2. (Colom.) An airshaft; a raise. 3. *T. de aire*, an air blast; an air current. 4. *T. de mulas*, a team of mules. 5. A blast or shot. 6. Hoisting or winding. 7. A rope used in hoisting. 8. (Chile) A drill hole. (Halse)

T-iron. 1. An angle iron having T-shaped cross-section. (Standard)
2. T-rails used in a mine, as distinguished from wooden rails.

Tirón (Sp.). A tug or jerk given to a rope in hoisting. (Halse)

Tirr. 1. (Scot.). The covering on rock in a quarry; overburden. Also Tirring. 2. (Scot.) To remove the covering from the rock in a quarry. (Barrowman)

Tisar. In plate-glass making, a heating furnace for an annealing chamber. (Standard)

Titan. 1. Titanium. 2. Titanite. (Standard)

Titanic anhydrite. A white pulverulent titanium oxide (TiO_2) found native as brookite, octahedrite, and rutile, and a common constituent of iron ores. Called also Titanic oxide.

Titanic iron ore. Ilmenite, $FeTiO_3$. (Webster)

Titanic schorl. Rutile. (Standard)

Titaniferous. Carrying titanium, as titaniferous iron ore. *See* Ilmenite. (Roy. Com.)

Titanio (Sp.). Titanium (Dwight). *See* Agulhas.

Titanite; Sphene. Calcium silicotitanite, $CaTiSiO_5$ (Dana). A fairly common but rarely abundant constituent of some igneous rocks. Generally yellow or brown with waxy luster. Can frequently be recognized without the aid of a lens. (Ransome)

Titanium. A metallic element found in nature only in combined form, and isolated as an infusible iron-gray crystalline powder. Symbol, Ti; atomic weight, 48.1; specific gravity 3.55 (Webster)

Tithe ore (Eng.). A portion of ore set aside for the payment of rental or royalty on mineral lands.

Titration. An analytical process consisting in the addition of a liquid in measured volume to a known volume of another liquid or to a known weight of a substance, till a certain definite effect, usually a change of color is observed (Webster). Volumetric analysis.

Título (Sp.). Title; *T. de propiedad*, title to a mining claim. (Halse)

Tiza (Sp.). 1. Ground chalk or whiting. 2. Finely divided gypsum. 3. (Chile) A mixture of ulexite with chlorides and sulphates of sodium and calcium, and sand. An important source of borax. (Halse)

Tizar (Durango, Mex.). A white pure silica used in glass making. (Halse)

Tizón (Mex.) A bond in masonry. *See also* Diente, 2. (Dwight)

Toadrock. *See* Toadstone.

Toad's-eye tin. Massive cassiterite in botryoidal and reniform shapes. (Standard)

Toadstone (Eng.). A kind of trap rock. (Raymond)

Toas (Corn.). To shake or toss tin ore in a kieve or vat with water, to cleanse and dress it. (Pryce)

Toba (Mex.). 1. Volcanic tuff. 2. *T. caliza*, calcareous tufa (Dwight). 3. (Colom.) Chalk. (Halse)

Tobera (Mex.). The tuyère of a smelting furnace. (C. and M. M. P.)

Toca (Braz.). Quality of gold. *Compare* Ley, 2. (Halse)

Todouno (Sp.). 1. Coal as it comes from the mines. Run of mine. (Halse)
2. Raw, rough ore. (Lucas)

Toe. 1. The burden of material between the bottom of the bore hole and the free face. 2. It is sometimes used to designate the bottom of the bore hole itself as distinguished from the heel, collar or mouth of the bore hole, which is the open end. (Du Pont)
3. A spurn, or small pillar of coal. (Gresley)
4. The front end of a frog, opposite the heel, in a car track.

Toeing-in. A quarry term for the wedging-in of the end of a granite sheet under an overhanging joint, probably in consequence of the faulting of the sheets along the joint. It is also applied to the overlapping of lenticular sheets. (Perkins)

Toellite. A biotite-hornblende-porphyrite, with garnets, that forms dikes in mica-schist and gneiss near Meran, in the Tyrol. (Kemp)

Toe nails. In geology, curved joints intersecting the sheet structure, in most cases striking with the sheets, in some differing from them in strike 45° or more. (Ries)

Toensbergite. A name given by W. C. Brögger to certain feldspathic syenitic rocks, from Tönsberg, Norway, that are close relatives of the anorthosites. They differ from the anorthosites in their smaller percentage of lime and higher percentage of alkalies. (Kemp)

Tofo (Durango, Mex.). China clay. (Halse)

Tofus (L.). Same as tufa. (Standard)

Toggle-joint. A joint having a central hinge like an elbow, and operated by applying the power at the junction of motion, as from horizontal to vertical, and giving enormous mechanical advantage: a mechanism common in many forms of presses, and in stone-crushers. (Standard)

Token. 1. (Aust.) A metal or leather ticket stamped with a distinctive number, fastened to a skip so as to indicate to the weighman who mined the coal (Power). A Ticket; Tag; Tally.
2. (Wales). A thin bed of coal, etc., indicating a thicker seam at no great distance. (Gresley)

Tol (Corn.). The land owner's part of the tin ore. (Pryce). Toll or rental.

Tola (Hind.). A weight for gold and silver, varying slightly according to locality, usually 180 grains Troy. (Standard)

Toll (Ches.). Royalty on rock salt, or other mineral. (Gresley)

Toller; Tollur (Corn.). One who inspects or superintends tin-bearing lands. To review or inspect. (Pryce)

Toluene. A hydrocarbon, $C_6H_5CH_3$, of the aromatic series, homologous with benzene, and obtained as a light mobile colorless liquid by distilling *tolu* balsam, and coal tar. Used in the manufacture of dyestuffs and other compounds (Webster). Formerly called Toluol.

Tolva (Sp.). 1. A hopper. 2. An ore chute. (Dwight)

Tom. An inclined trough in which gold-bearing earth or gravel is crudely washed; usually called Long tom because it is longer than a rocker. (Webster)

Tomassi process. An electrolytic process for refining lead in which the electrolyte is a solution of a double acetate of lead and of potassium or of sodium. The anodes are cast from crude argentiferous lead; the cathodes are in the form of large disks of copper or of aluminum bronze and are about half immersed in the electrolyte, in which they slowly revolve, each being placed between two anodes. The lead crystals formed are detached by scrapers. When in sufficient quantity they are collected, drained, washed, dried, and fused with a little charcoal. (Goesel)

Tombac. Any one of several copper and zinc alloys, as Prince's metal, Mannheim gold, etc. Also spelled Tambac; Tombac; Tombak. (Standard)

Tommy dodd (Aust.). A series of small pulleys, with vertical axles placed between the rails at a curve, so as to keep an endless rope in place. (Power)

Ton. 1. An avoirdupois unit of weight. A *short* or *net* ton equals 2,000 pounds (907.20 Kg.). A *long* or *gross* ton equals 2,240 pounds (1,016.6 Kg.). A *metric* ton equals 2,204.6 pounds (1,000 Kg.). A *Cornish* mining ton equals 2,352 pounds (1,066.87 Kg.).
2. A unit of internal capacity for ships; a *register* ton equals 100 cu. ft.; a *displacement* ton equals 35 cu. ft.; a *shipping* ton often reckoned at 40 cu. ft., and a ton of timber equals 42 cu. ft. (Webster)
(Aust.) A ton of firewood equals 50 cu. ft. of wood. (Davis)

Tonalite. A quartz-mica-hornblende diorite from near Meran in the Tyrol. It was named by vom Rath from Tonale, a place on Mt. Adamello. *Compare* Adamellite. (Kemp)

Tonel (Sp.). 1. A barrel; *T. de amalgamación*, an amalgamating barrel. 2. A kibble; corf. 3. A vat. (Halse)

Tonelada (Sp.). Ton. The ton of Castile equals 2,032.2 pounds avoirdupois; the Mexican and Spanish-American ton equals 2,028.88 pounds avoirdupois; the metric ton, 1,000 kg. equals 2,204.6 pounds avoirdupois. (Halse)

Tonga (Colom.). The difference in level between two points, whereby alluvial mines can be drained by a ground sluice and a lode mine by an adit. (Halse)

Tongs. 1. *See* Chain tongs; Pipe grip; Pipe tongs; Pipe wrench. (Nat. Tube Co.)
2. In gem cutting, a stand having at its upper end a vise-like arrangement by which to hold the cup in which a gem is cemented, so as to press the latter against the polishing wheel. (Standard)

Tongue. A piece of iron or steel projecting from the stem of a stamp head. (Hunt)

Tongue joint. In welding, a split joint formed by inserting a wedge-shaped piece into a corresponding split piece and welding the two together. (Century)

Tonite. An explosive consisting of about equal weights of guncotton and barium nitrate. It is used for blasting. (Webster)

Ton mile. In railroading, a standard measure of traffic, based on the rate of carriage per mile of each ton of freight. (Standard)

Tonnage. The amount of ore handled per day. The amount of ore in sight.

Tooler. A stonemason's chisel two to four inches broad (Standard). Called also Broad tool; Drove.

Tool extractor. An implement for grasping and withdrawing boring tools when broken or detached in a bore, as of an oil well, etc. Called also Tool grab. (Standard)

Tool nipper. A person whose duty it is to carry powder, drills and tools to the various levels of the mine and to bring such tools and drills as have been dulled by use to the surface. *See* Nipper, 1. (Moreno *v.* New Guadalupe Min. Co., Cal. App., 170 Pac. Rept., p. 1088)

Tool steel. Steel of superior quality, that can be highly tempered: for use in making cutting tools. (Standard)

Top. 1. A mine roof. *Top* coal, the upper part of a coal bed separated from the rest by a seam or parting. *Top* bottom (Ark.), the upper part of the bottom bench of a coal bed. (Steel)
2. A quarryman's term for overburden. (Bowles)
3. The part of a cut gem above the girdle; the crown. (Webster)
4. *See* Cap, 2; also Blue cap. (Gresley)
5. (Of a vein) *See* Apex.

Topacio (Sp.). Topaz. (Dwight)

Topaz. An aluminum fluosilicate, simplest formula, $Al_2SiO_4F_2$, but with part of the fluorine commonly replaced by the radical, OH. Used as a gem, especially when yellow (U. S. Geol. Surv.) *See* False topaz, also Oriental topaz.

Topazfels (Ger.). A brecciated, contact rock, near granite contacts, and formed of topaz, tourmaline, quartz and some rarer accessory minerals (Kemp). Also called Topazrock.

Topazolite. A variety of garnet, of topaz-yellow color, or olive-green. (Century)

Topazrock. A rock resulting from contact metamorphism, made up of an aggregate of fragments of quartz and tourmaline, cemented by a mixture of quartz and topaz (Century). Also called Topazfels.

Top bottom (Ark.) *See* Top.

Top cager. A man at the top of a shaft to superintend the operation of lowering and raising of the cage. (Illinois Third Vein Coal Co. *v.* Cioni, 215, Illinois, p. 583; Spring Valley Coal Co. *v.* Buzis, 213, Illinois, p. 341). It is also his duty, at most mines, to remove the loaded cars from the cage, and place the empty cars on the cage. *See* Cager, 1.

Top canch. That part of a mine roof which has to be taken down to give head room on roadways. (Gresley)

Top coal (Scot.). The uppermost of two or more divisions of a seam of coal. *See* Top, 1. (Barrowman)

Tope. 1. (Sp.) Top, summit or apex. 2. (Colom.) A discovery of ore. (Halse)

Top gas (Aust.). Fire damp. (Power)

Top head (So. Staff.). A passage driven in the upper part of a thick coal seam for drawing off the gas (Gresley). *See also* Boss.

Topholes (Eng.). Working places extending to the full rise. (Redmayne)

Tophus. Any natural calcareous tufa. Called also Toph; Tophin. (Standard)

Topit (Eng.). A small bracehead, screwed on to the top of boring rods when withdrawing them from the hole. (Gresley)

Top kick. *See* Top shot.

Topman. Any man employed on the surface about a mine. (Power)

Topographic adolescence. A geologic stage when lakes have mostly disappeared, and river drainage is well established, stream channels being comparatively narrow and well marked and falls occurring characteristically (Standard)

Topographic high. Frequently used in the oil fields to indicate the higher elevations, regardless of age; opposed to topographic low which indicates a lower elevation. *Compare* Geologic high.

Topographic infancy. In geology, a featureless stage characterized by a smooth nearly level surface of deposit, lakes abounding in slight depressions, shallow streams, and drainage-systems not well established. (Standard)

Topographic low. *See* Topographic high.

Topographic maturity. In geology, a stage of maximum diversity of form when valleys have greatly increased, and the river channels are widely opened. (Standard)

Topographic old age. A geologic stage in which there is a featureless surface, differing from the earliest stage (topographic infancy) in having a system of drainage streams, separated by faintly swelling hills. (Standard)

Topography. 1. The science of surveying the physical features of a district or region and the art of delineating them on maps. 2. The physical features of a district or region, such as are represented on maps, taken collectively; especially, the relief and contour of the land. (La Forge)

Topping. The coal on a mine car above the top of the car box. (C. and M. M. P.)

Topple (So. Wales). From Tophole. A working place driven to the rise of the main levels. (Gresley)

Top ply; Top leaf; Tops (Scot.). The uppermost layer of a bed of coal left for a roof (Gresley). Also called Water leaf. *See also* Top, 1.

Top rod (Scot.). The rod connecting the uppermost pump rod to the bell-crank. (Barrowman)

Top-set beds. The material laid down in horizontal layers on top of a delta. *See* Fore-set beds and Bottom-set beds. (Watson, p. 274)

Top shot. An explosion or puff of gas at the furnace top. (Willcox)

Top slicing. A method of stoping by which the ore is taken from horizontal stopes and supporting the overlying mat with timber. (H. C. Hoover, p. 123)

Top slicing and caving. *See* Top slicing and cover caving.

Top slicing and cover caving. The important feature is the working of the ore body from the top down in successive horizontal slices that may follow one another sequentially or simultaneously. The whole thickness of the slice is worked. The ore may be broken by overhand or underhand stoping in each unit. The overburden or cover is caved after mining a unit. The method is a retreating method. The long-wall method, the pillar robbing in both room-and-pillar, and bord-and-pillar methods of mining coal are essentially the same in principle as top slicing. The principal difference is that a single slice only is worked in these methods. There are two modifications: top slicing by drifts, and top slicing by rooms. A timber mat is used in almost all cases (Young). Other terms used for this system are: Caving system; Crosscut method (combined with removal of pillars); Horizontal slicing (descending); Mining ore from top down; Panel slicing; Prop slicing; Removing pillars and allowing roof to cave; Slicing under mats of timber in panels; Square-set slicing; Top slicing and caving; and Transverse slicing with caving.

Top slicing combined with ore caving. In this method the ore body is worked from the top down in successive slices. Instead of taking the full height of the slices, only the lower part is taken and the upper part is caved. After removing this portion of the ore, the cover is caved. A timber mat is used in most cases to separate the broken cover from the ore and for safety (Young). Also known as Caving system; Sub-drifting and caving; Subslicing; Slicing under ore with back cave; Sublevel caving, and Sublevel slicing.

Top wall. Same as Hanging wall. (Standard)

Top water. Water which enters an oil or gas well from a sand above the productive sand. *Compare* Bottom water; Edge water. (U. S. Geol. Surv. Bull. 658, p. 44)

Tor (Eng.). A rounded mass of rock left in an elevated position by the decay of surrounding parts. Sometimes called Bowlder (Duryee). A rocky pinacle; a high pointed hill. (Webster)

Torbane Hill mineral. A boghead coal obtained from Torbane Hill, Scotland. (Webster)

Torbanite. A dark brown variety of cannel coal (Power). A boghead coal from Torbane-Hill, Scotland (Webster). Also called Bathvillete.

Torbernite. A hydrous phosphate of uranium and copper, $CuO.2UO_3.P_2O_5.8H_2O$ (U. S. Geol. Surv.)

Torbite (Lanc.). A trade-mark name of a dried and compressed peat. (Century)

Toroh. An oil-burning, wick-fed lamp of tin or copper, with a long spout, used by miners.

Tordrillite. A name based on the Tordrilla mountains, Alaska, and suggested by J. E. Spurr for porphyritic varieties of alaskite, which have a finely crystalline or aphanitic groundmass. *See also* Alaskite. (Kemp)

Tormentor (Aust.). A wooden axle studded with iron spikes, and turned round in a trough, for the purpose of puddling auriferous clay (Davies). A device somewhat similar to the log washer.

Tormo (Sp.). A high pointed, isolated rock. (Halse)

Tornapunta (Sp.). 1. An inclined stay or prop which supports two parallel timbers. 2. An inclined stull. (Halse)

Tornero (Sp.). 1. Windlass-man, or man at the winch or *torno;* 2. Turner of a lathe. (Halse)

Torno (Sp.). 1. A windlass; *T. con accion directa,* a direct-acting hoist; *T. con malacate,* a whim; *T. con piñones,* a geared hoist; *T. de mano,* a hand winch; *T. de vapor,* a steam winch or hoist; 2. A turning lathe. 3. (Spain) A sump. (Halse)

Toro. 1. (Sp.). A bull. 2. (Mex.) Fire damp. (Halse)

Torpedo. 1. An explosive cartridge, or shell, lowered or dropped into a bored oil well, and there exploded, to clear the well of obstructions, or to open communications with a source of supply of oil. 2. A kind of detonating cartridge placed on a rail, and exploded when crushed under a locomotive wheel; used as a signal. (Webster)

Torrefaccion (Sp.). Calcination. (Lucas)

Torrents. Beds of quicksand encountered below the chalk marl in the Anzin coal field, in France. (Gresley)

Torta (Mex.). The flat circular heap of ore spread out on the floor of the patio in a cake about fifty feet in diameter and a few inches in thickness, ready for amalgamation in the *patio* process (Duryee). *T. rendida,* amalgam ready to be washed. (Halse)

Tosa (Mex.). The grinding space in the arrastre. (Egleston)

Tosca (Mex.). 1. Clayey vein matter. 2. Talc seam. 3. Soft, decomposed porphyry. 4. (Pat.) A white calcareous marl. 5. (Colom.) In alluvial mining, a bed of volcanic origin, as lava, tufa, etc. (Halse)

Toscanite. A name proposed by H. S. Washington for a group of acid, effusive rocks in Tuscany (Italian, Toscana) and elsewhere, which are characterized mineralogically by the presence of basic plagioclase, as well as orthoclase, and by occasional quartz. They range from 62–73 silica and are intermediate between rhyolites and dacites. *Compare* Dellenite. (Kemp)

Toss. *See* Tossing.

Tossing; Tozing (Corn.). 1. Washing ores by violent agitation in water, their subsidence being accelerated by packing or striking, with a hammer, the keeve in which the operation is performed. Chimming is a similar process on a smaller scale. 2. Refining tin by allowing it, while molten, to fall several feet through the air. (Raymond)
3. Jigging. (Webster)

Tostado (Sp.). Roast; *T. á muerte,* a dead roast; *Mineral tostado,* roasted ore. (Lucas)

Tostador (Mex.). 1. A roasting furnace. 2. A man in charge of the furnace. (Halse)

Tostar (Sp.). To roast. (Dwight)

Tot (No. of Eng.). A measure of gunpowder used in blasting. (Gresley)

Totuma (Sp. Am.). A large dish made of a gourd and used in gold washing. (Halse)

Touch. 1. (Eng.). A fuse for setting off a powder charge. (Gresley)
2. *See* Touchstone. 3. A stone of durable character suitable for preserving inscriptions or for fine monumental work. (Century)

Touch needle. A needle or small strip of gold alloy, of known composition, for determining the composition of another alloy by comparing marks made by each on the same touchstone. (Standard)

Touchstone. 1. A black siliceous stone, allied to flint, SiO_2. (Dana)
2. A black, hard stone (basalt or jasper), on which the fineness of an alloy of gold and silver can be tested by comparing its streak with that of a piece of alloy (touch-needle) of known fineness (Raymond). Also called Lydian stone and Basanite.

Tough. 1. Having the quality of flexibility without brittleness; yielding to force without breaking. 2. The exact state or quality of texture and consistency of well-reduced and refined copper. 3. Copper of the above quality; called also Tough cake. (Webster)
4. (Shrop.) Gray, plastic clay. (Gresley)

Tough cake. Refined or commercial copper (Raymond). *See also* Tough, 2 and 3.

Toughen. To remove the last remaining quantities of foreign metals from (copper) in refining, as by poling. (Standard)

Tough pitch. A term used in electrolytic copper refining to designate copper which has set, from the molten condition, with a level sur-

face. (Eng. and Min. Jour., vol. 102, p. 875). *See* Underpoled and Overpoled.

Tour (Calif.). A term used in oil-well drilling which means the same as "shift" in other mining operations (A. Rundell *v.* American Oil Fields Co., 160 Pacific, p. 161, 1916). Also spelled Tower.

Tourmaline. A complex aluminum silicate of hexagonal crystallization containing boron and in some varieties lithium and other elements. Of various colors; the clear pink, blue, and green varieties are used as gems (U. S. Geol. Surv.). It occurs in long, usually striated prisms in the ancient crystalline rocks. Called also Schorl.

Tournasin (Fr.). A knife for scraping excess of slip from baked and decorated ceramic ware. (Standard)

Tournette (Fr.). In ceramics, a rotating tablet, resembling a small potter's wheel, used in decorating the finer wares with lines. (Standard)

Tourniquet (Fr.). A device for stopping the flow of blood by means of compression of the blood vessel, as an artery or vein, on the side of the wound from which the blood is flowing. It consists, usually, of a pad over the blood vessel pressed down by a strap, rubber band, twisted bandage, or the like.

Tout venant (Belg.). Coal as landed on the bank previous to screening and sorting (Gresley). Run of mine.

Tow. 1. (Leic.) Dark, tough, earth clay or shale. (Gresley)
2. (Scot.) The winding rope, which before the introduction of iron or steel ropes was made of hemp or tow. (Barrowman)

Tower (Calif.). *See* Tour.

Township. In surveys of the public lands of the United States, a division of territory that is, with certain exceptions, six miles long on its south and east and west boundaries which follow meridians, and so slightly less than six miles on the north. It contains 36 sections. (Webster)

Towt (Newc.). A piece of old rope. (Raymond)

Tozing. *See* Tossing.

Trabajadores. 1. (Colom.) Mineral veins that have been worked open cast (Halse). 2. Workmen; laborers.

Trabajar (Sp.). To work a mine. (Halse)

Trabajo (Sp.) 1. Work. 2. Mine working. *T. de arranque*, a working place; *T. de banca*, underhand stoping, overhand stoping, back stoping, roof work; *T. del antiguo* (Colom.), ancient mine workings, or those worked during the time of the Spanish *conquistadores; T. del indio* (Colom.), mines prior to the conquest. (Halse)

Trace. 1. The intersection of a line or plane with a plane or other surface. 2. A very small quantity of a constituent, especially when not quantitatively determined, owing to its minuteness; in assaying, often abbreviated *tr.* (Webster)
3. To follow the lode on the surface, and to lay it open by long pits. (Davies)

Tracheo (Sp.). Passing ore or waste from one *peón* to another in baskets. (Halse)

Trachorheite. A name proposed by F. M. Endlich as a collective designation for the four rocks, propylite, andesite, trachyte, and rhyolite, as used by von Richthofen. (Kemp)

Trachy-andesite. Effusive rocks, intermediate between trachytes and andesites. Used by H. S. Washington for trachytes which have also much acidic plagioclase (andesine to oligoclase). (Kemp)

Trachy-dolerite. A name suggested by Abich for a group of rocks intermediate between the trachytes and basalts. *Compare* Latite. Trachydolerite as used by H. S. Washington means a trachyte with considerable basic plagioclase (labradorite to anorthite). (Kemp)

Trachyte. Any aphanitic, aphanophyric, or glassy igneous rock composed essentially of alkalic feldspar, with or without mica, amphibole, pyroxene, and other accessories, or of rock glass having essentially the same composition. (La Forge) It was formerly used for both rhyolite and trachyte proper, as a field term for light-colored lavas and porphyries. As such in older reports it is to be understood. *Compare* Acmite-trachities and Pantellerites. (Kemp)

Trachytic. 1. Characteristic of, pertaining to, formed of, occurring in, or resembling trachyte. 2. Specifically, characterized by closely packed small laths or prisms of alkalic feldspar lying roughly parallel and arranged in lines resembling lines of flow, forming the trachytic fabric. (La Forge)

Trachytic texture. A special name for those microscopic groundmasses that are made up of rods of feldspar, usually in flow-lines, but without basis. (Kemp)

Track (Aust.) A Bendigo term applied to veins when the walls come together; when followed the veins widen out again. (Power)

Track-channeler. In quarrying, a rock-channeler designed to operate from a track on which it is mounted; frequently a combined locomotive and channeling-machine. (Standard)

Tracking. Iron or wooden tram rails.

Track layer; Trackman. In railroading, any workman engaged in work involved in putting the track in place (Webster). Also one employed at mines to lay or repair track.

Traction. The act or method of drawing, or the state of being drawn; particularly the act of drawing by motive power over or along a surface, as in towing a load or pulling a wagon or car. (Standard)

Traction rope. A rope used for transmitting the power in a wire-rope tramway and to which the buckets are attached. (C. M. P.)

Trade. 1. (Eng.) Refuse; débris. (Bainbridge)
2. Demand for coal. (Min. Jour.)

Tragante. (Sp.). 1. A sluice; a ditch. 2. A chimney. 3. The mouth of a shaft furnace. 4. In a reverberatory furnace, the inclined flue leading to the chimney. (Halse)

Trail. 1. A footpath or track worn by passage through a wilderness or wild region. (Webster)
2. *See* Trail of the fault.

Trailer. 1. (Scot.) A bar dragging behind a car to prevent it from running down grade should a coupling break; a jock. 2. (No. of Eng.) One who pushes a coal car in a mine; a putter

Trailer cable (Aust.). A branch cable for conveying electricity to a coal-cutter, one end of which is attached to the main cable. It is capable of being paid out as the machine advances (Power). Also used on gathering motors, as the trolley wire does not extend into the rooms.

Trail of the fault. Crushed material of a bed or vein that indicates the direction of the fault movement; valuable as a guide to the miner in search of the main vein.

Train. 1. To trace, or follow an alluvial mineral deposit to its place of origin. 2. A roll train. 3. A connected line of cars on a railroad, with or without a locomotive. 4. A line of gunpowder laid to lead fire to a charge. 5. (Can.) A long sleigh for transportation of merchandise. 6. A trip of coal cars; *see* Journey, 1.

Train boats (York.). A number of boats coupled together in a simple manner, admitting of free articulation, in which coal is carried on canals or rivers from the mines to the shipping ports. (Gresley)

Train boy. A boy who rides on a trip, to attend to rope attachments, or to signal in case of derailment of cars, etc. A trip rider. (C. and M. M. P.)

Train mile. One mile traveled by one train; used as a unit of railroad operation in order to estimate economy in running expenses. (Webster)

Trainroad. A temporary track in a mine, used for light loads (Century). A tramroad.

Tram (Wales). 1. A four-wheeled truck to carry a tub, corve, or hutch.
2. The rails of a tramroad or railroad (Raymond). *See* Tramroad.
3. A boxlike wagon, now often of steel, running on a tramway or railway in a mine, for conveying coal or ore. (Webster)
4. To haul or push trams or cars about in a mine (Gresley)

Tramcar (Eng.). A car used in coal mines; same as Tram, 3. (Century)

Tram carriage (Corn.). *See* Tram, 1.

Trammer. 1. One who pushes cars along the track. In Arkansas known as a pusher (Steel). Also Haulier, and Putter.

2. (Mich.) A person whose duty it is to load broken rock upon tram cars and deliver it at the shaft. (Meola *v.* Quincy Mining Co., 140 N. W. Rept., p. 460; Mesich *v.* Tamarack Mining Co., 151 N. W. Rept., p. 565)

Tramo (Sp.) 1. Piece; *T. rico*, a rich ore shoot. 2. The portion of the timbering in a shaft that sustains the walls. 3. A ladder way. (Halse)

Trampa (Sp.). 1. A sluice gate. 2. A mercury trap. (Halse)

Trampilia (Sp.). The trap door of an ore chute. (Halse)

Tramp iron. Stray pieces of drill steel, picks, tools, etc. which are found in ore. Often removed by a magnet as ore is fed into a crusher.

Tram plate (Scot.). A cast-iron flanged rail or plate for tram roads. (Barrowman). *Compare* Tram rail.

Tram rail (Eng.). A rail for a tram or trams (Webster). A light railroad rail distinguished from tramplate by being rolled while the latter is cast.

Tramroad (Eng.). A road laid with tram rails or plates. So called after one Benjamin Outram, of Little Eton, in Derbyshire, who in 1800 used stones for carrying the ends of the metal plates or edge rails. The name Outram was subsequently contracted into *Tram*, hence tramway, trams, etc. (Gresley)

Tram rope. A hauling rope, to which the cars are attached by a clip or chain, either singly or in trips. (C. and M. M. P.)

Tramway. 1. A roadway having plates or rails on which wheeled vehicles may run. A *tramroad.* (Standard)
2. A suspended cable-system along which material, as ore or rock, is transported in suspended buckets. *See* Aerial tramway.

Tranca (Mex.). Square set of timbers. (Dwight)

Transcurrent fault. *See* Fault.

Transfer car. A quarry car provided with transverse tracks, on which the gang car may be conveyed to or from the saw gang (Bowles). *See also* Transfer carriage.

Transfer-car man. One who operates an electric car on an ore trestle, which transfers ore from the ore bridge to an ore bin. (Willcox)

Transfer carriage. A platform or truck used to transfer mine cars. (Chance)

Transfer gilding. In ceramics, a transfer of a pattern in gold, as from paper to unglazed ware, usually done either by direct transfer of the gold in reverse, or by stamping the pattern in oil and dusting with gold powder. (Standard)

Transformer. An apparatus for transforming an electric current from a high to a low potential (step-down transformer) or vice versa (step-up transformer) without changing the current energy; a converter. (Webster)

Transformer oil. An oil for high tension electrical transformers free from water and mineral acids. It should show little or no volatility at 100° C. Those machine oils, derived from petroleum, which have a flash point of over 160° C. (open test), with a volatility of less than 0.1 per cent in five hours at 100° C., are usually suitable for use in transformers. (Bacon)

Transgression. In geology, discrepancy in the boundary-lines of continuous parallel strata; unconformability of overlap; used only by European geologists. (Standard)

Transit. A surveying instrument with the telescope mounted so that it can be transited; called also a Transit theodolite.

Tansition. Intermediate. In the nomenclature of Werner and other early geologists, the older Paleozoic strata, which are now assigned to the Cambrian, Ordovician, and Silurian systems. But little used at present.

Tansition point. In physical chemistry, a single point at which different phases are capable of existing together in equilibrium. (Webster)

Transition rocks. *See* Transition.

Translatory fault. *See* Fault.

Translucent. Admitting the passage of light, as milk-quartz, but not capable of being seen through. (Roy. Com.)

Transmission rope. A rope used for transmitting power. (C. M. P.)

Transmutation. An alternating change. The conversion of metals, one into another, especially, base metals into gold or silver, which was one of the aims of alchemy, but never realized.

Transmutation glaze. In ceramics, an iridescent porcelain glaze. (Standard)

Transparent. That may be seen through, as rock crystal, Iceland-spar, selenite, etc. (Roy. Com.)

Transportar (Sp.). To transport, convey, or haul. (Halse)

Transportation. 1. In geology, the shifting of material from one place to another on the earth's surface by moving water, ice, or air. The carriage of mud and dissolved salts by rivers, the passage of a dust-laden whirlwind across a desert, the inland march of sand dunes from a seashore, and the creeping movement of rocks on a glacier are all examples of transportation. (Ransome)
2. The hauling, or moving from one place to another, of material, as ore, coal, rock, etc.

Transporte (Sp.). Transport, haulage, or conveyance; *T. aérco*, a wire-rope tramway; *T. con trincos*, transport by sledges; *T. subterráneo*, underground haulage, tramming. (Halse)

Transverse fault. A fault whose strike is transverse to the general structure. (Lindgren, p. 121)

Transverse lamination. Lamination of cleavage transverse to stratification. (Standard) *See* Cross-bedding.

Transverse slicing with caving. *See* Cover caving; Top slicing.

Transverse strength. A measure of the capability of a bar of stone (or beam) supported at its ends, to bear a weight or load at its center. (Bowles)

Transverse with filling. *See* Overhand stoping.

Tranvía (Mex.). Tramway. (Dwight)

Trap. 1. Trap rock. A general name for dark fine-grained igneous rocks, particularly lavas or dikes. *See also* Basalt and Diabase. (U. S. Geol. Surv.) A useful field name for any dark, finely crystalline, igneous rock. It is a Swedish name from the occurrence of such rocks in sheets that resemble steps, "trapper" (Kemp). *Compare* Whin, 1.
2. A door used for cutting off a ventilating current, which is occasionally opened for haulage or passage; guarded by a trapper. (Raymond)
3. A fault or dislocation. 4. (Scot.) Traveling road for miners in Edge coals driven on the slope of the seam. (Gresley)
5. (or **Well**) The troughs and catch-pits, whether carrying mercury or not, which are used to arrest escaping amalgam, etc. The word "trap" should be confined to the deep boxes unprovided with mercury, and the word "well" to the transverse troughs which do contain it. At Clunes the word "boxes" is used, while, elsewhere in Australia "ripples" is a term given to shallow wells as distinguished from the deep ones. (Raymond)
6. (Scot.) Short ladders in a shaft. (Barrowman)

Trap brilliant. A trap-cut brilliant (Standard). *See* Trap cut.

Trap cut. A gem with a row or rows of step-like facets around the table and culet (or small lower terminus of the gem, parallel to the table), or around the culet alone. (Standard)

Trap dike. A dike of any of the sorts of rock called trap. The term has no very definite significance, as rocks such as bostonite and dacite have been included under it. (La Forge)

Trap door. A door in a mine passage to regulate or direct the ventilating current. Also called Weather door. *See also* Trap, 2.

Trap-down (Brist.). A down-throw fault. (Gresley)

Trapezohedron. 1. In the isometric system, the same as Tetragonal trisoctahedron, *which see.* 2. In the tetragonal and hexagonal systems, any of several forms having principal and lateral axes of symmetry, but no planes of symmetry, and enclosed by six, eight, or twelve faces each having unequal intercepts on all the axes. (La Forge)

Trapiche (Chile). A primitive form of grinding mill (Dwight). Especially of the Chilean or edge runner type.

Trapichero (Chile). The man in charge of a *trapiche.* (Halse)

Trappean. Relating to trap rocks. (Hitchcock)

Trappean ash. A fragmentary, scoriaceous variety of eruptive rock. Called also Ash-bed, though generally resembling volcanic deposits only in structure, not in origin. (Standard) Obsolete.

Trapper. 1. A person employed in an entry to open and close a door for the cars (Sprinkle *v.* Big Sandy Coal & Coke Co., 78 S. E. Rept., p. 972; National Fuel Co. *v.* Maccia, 25 Colorado App., p. 446). Also called Trapper boy; Nipper; Door tender.

Trappoid. Of, pertaining to, or having the nature of trap rock. (Standard)

Trap rock. *See* Trap, 1.

Trap-up (Brist.). An up-throw fault. (Gresley)

Trasera (Sp.). The back of a furnace. (Halse)

Traspalar (Mex.). To shovel. To turn the *torta* in the *patio* process with a shovel. (Halse)

Trass (Ger.). A gray, yellow, or whitish earth, related to pozzuolana, common in volcanic districts, formed by the decomposition of trachytic cinders, and consolidated by infiltration of calcareous or siliceous solutions; used in preparation of a hydraulic cement. Formerly called Tarrace; Tarras; Terrace; Terras. (Standard)

Tratamiento (Sp.). Treatment. *See* Beneficio, 3. (Halse)

Traunter (Mid.). A long sprag. Also called Tront. (Gresley)

Travel (Scot.). The length of stroke of a pump. (Barrowman)

Traveler. 1. A truck rolling along a suspended rope for supporting a load to be transported. (C. M. P.) 2. A crab or winch moving on an elevated track, used especially in erecting steel bridges or other large work; also a traveling crane. (Webster)

Traveling apron. *See* Apron, 6.

Traveling belt. A conveyor belt, for handling ore, rock, or coal.

Traveling road (Eng.). An underground passage or way used expressly, though not always exclusively, for men to travel along to and from their working places (Grealey). A traveling way.

Traveling way. *See* Traveling road.

Traveling weight (Aust.). *See* Underweight.

Traveled. In geology, removed from the original place; erratic (Standard). Said of stones, bowlders, etc.

Traverse. 1. To make a traverse survey. 2. A line surveyed across a plot of ground. 3. An oblique line or streak; a vein or fissure, as in a rock running transversely. (Webster)

Traverse survey. A survey in which a series of lines joined end to end are completely determined as to length and azimuth, these lines being often used as a basis for triangulation; used for long narrow strips of country, as for railroads (Webster). Also used for underground surveys.

Travertine. Calcium, carbonate $CaCO_3$, deposited from solution in ground and surface waters. The cellular deposits are known as tufa, calcareous sinter, spring deposit, or cave deposit. When solid, banded, and susceptible of a good polish, it is known as Mexican onyx, or onyx marble. True onyx, however, is banded silica or agate. Travertine forms the stalactites and stalagmites of caves, and the filling of some veins and spring conduits. (U. S. Geol. Surv.).

Travertino (Mex.). Travertine. (Dwight)

Travesaño (Sp.). A cap piece; a strut. (Lucas)

Traviesa (Sp.). 1. A crosscut or cross gallery, usually at right angles with the main gallery. 2. A bearing beam; sleeper; a dividing piece. (Halse)

Trawley. A small truck or car conveying material about a furnace or iron mill: sometimes applied to trucks, in mines, etc. (Standard). *See* Trolley, 1.

Trawn (Corn.). In mining, a crosscourse. (Standard)

Trazador (Mex.). An underground foreman. (Halse)

Tread. The pit in which brickmakers soak their clay before putting it into the pug mill. (Standard)

Treasure Box. A pocket of very rich ore.

Treatment. In metallurgy, the reduction of ores by any process whereby the valuable constituent is recovered.

Treble coursing. In mining, the system of dividing a ventilating current into three coursings (splits). (Standard)

Tree. 1. A thick log used as a prop in heavy ground (Steel). A prop, leg, or puncheon.
2. In chemistry, a treelike aggregation of crystals, as a lead tree obtained by suspending a piece of zinc in a solution of lead acetate. (Webster)
3. (Scot.) A trestle. 4. The fulcrum for the lever used in boring. (Barrowman)

Tree agate. A variety of agate containing dendritic markings; sometimes made artificially. (Standard)

Treed. Supported by props, as a mine roof. (Barrowman). *See* Tree, 1.

Treenail. A long wooden pin for securing planks or beams together. (C. and M. M. P.)

Tree-up (Scot.). To set props in the workings. (Gresley)

Trek (So. Afr.). The act of drawing or hauling; traction; also, the state of the roads; as, the *trek* was heavy. (Standard)

Trek wagon (So. Afr.). A large six-wheeled covered wagon used in trekking. (Webster)

Treloob (Corn.). To treat or work loobs or tin-slimes; to toss. An obsolete term. (Standard)

Treloobing (Corn.). Stirring the "loobs" (slime tin) in water, so that the lighter mud may run off. (Davies)

Tremblores (So. Am.). Tremors of the earth's surface in volcanic districts. (Standard)

Tremie. A box or frame of wood or metal used for depositing concrete under water. Its upper section forms a hopper above water to receive the concrete, and it may be moved laterally or vertically by any suitable device, as a traveling crane. (Standard)

Tremolite. White fibrous amphibole, $CaMg_3Si_4O_{12}$. (U. S. Geol. Surv.)

Tremolitic. Pertaining to or characterized by the presence of tremolite, as tremolitic marble. (Century)

Trend. 1. The direction or bearing of the outcrop of a bed, dike, sill, or the like, or of the intersection of the plane of a bed, dike, joint, fault, or other structural feature with the surface of the ground. 2. The direction or bearing of a fold or series of folds in rocks, or of the axes of the folds, or of topographic features that are consequent on the geologic structure. (As used in either sense the *trend* may or may not coincide with the *strike*, depending on the structural relations at the place of observation.) (La Forge)

Trent agitator. An agitator with arms of the paddle-wheel type, but they are hollow, and the pulp solution, or air, is discharged from nozzles on these arms, thus causing the stirrer to rotate. (Liddell)

Trenton. Of, pertaining to, or designating a division of the North American Silurian formation, highly developed in the Appalachian region and in the interior. (Standard)

Trépan (Fr.) A heavy tool, having vertical chisels fixed to a horizontal bar, used in boring shafts at a single operation (Webster). A boring machine used for shaft sinking through water-bearing strata. (Skinner)

Trestle man. One who unloads coke, limestone, and ore, and keeps bins poked down. (Willcox)

Triad. In chemistry, an atom, radical, or element that has a combining power of three. (Standard)

Trial. In ceramics, one of the pieces of ware which is used to try the heat of the kiln and the progress of the firing of its contents. (Century)

Triamorph. Minerals having the same chemical composition, but crystallizing in three different forms, *e. g.*, quartz (rhombohedral), tridymite (hexagonal), and asmanite (rhombic). (Power)

Triangle. 1. (Scot.) A three-legged derrick for hoisting rods in boring. (Barrowman)
2. In ceramics, a triangular stilt. (Webster)

Triangulate. To divide into triangles; to survey by triangulation; having triangular markings. (Webster)

Triangulation. 1. In surveying, the series of network of triangles into which any portion of the earth's surface is divided in a trigonometrical survey. 2. The operation of measuring the elements necessary to determine these triangles, and thus to fix the positions and distances apart of their vertices (Webster). *See* Trigonometrical survey.

Triassic. The earliest of the three geologic periods comprised in the Mesozoic era, in the nomenclature generally used. Also the system of strata deposited during that period. (La Forge)

Tribolites. A term employed by M. E. Wadsworth to include mineral abrasives or attrition materials. (Power)

Triboluminescence. The property of some specimens of zinc sulphide of emitting sparks when scratched. Not only the mineral zinc-blende but the artificial sulphide exhibits this phenomenon. The sparks do not ignite inflammable gases. (Min. and Sci. Press, May 1, 1915)

Tribunal de minería (Sp.). Mining tribunal. (Hanks)

Tribute (Corn.). A portion of ore given to the miner for his labor. Tributors are miners working under contract, to be paid by a tribute of ore or its equivalent price, the basis of the remuneration being the amount of clean ore contained in the crude product. (Raymond)

Tribute pitches (Eng.). The limits assigned to a crew of miners. (Bainbridge)

Tributer. One who works a mine or mineral deposit for a share of the product. (Roy. Com.)

Tribute work. In mining, work on shares. (Standard)

Trichite. A microscopic hair-like crystallite. (Kemp)

Trichroism. A property possessed by certain minerals of exhibiting three different colors when viewed in different directions. (Power)

Triclinic block. In quarrying, a term applied to a block of stone bounded by 3 pairs of parallel faces, none of the interfacial angles being right angles. (Bowles)

Triclinic system. That system of crystals in which the forms are referred to three unequal mutually oblique axes. (La Forge)

Tridymite. A mineral consisting, like quartz, of silica, SiO_2, but differing in crystallization. (Dana)

Trig (Eng.). A sprag used to block or to stop a tram wheel, or any machinery. (C. and M. M. P.)

Triger process (Fr.). A method of sinking through water-bearing ground, in which the shaft is lined with tubbing and provided with an air-lock, work being conducted under air pressure. *Compare* Kind-Chaudron process. (Webster)

Trigonal. 1. Having, in the ideal or symmetrically developed form, triangular faces: as the trigonal trisoctahedron. 2. Threefold; occurring three times at equal intervals in one complete rotation: said of one kind of axial symmetry. 3. Characteristic of, pertaining to, or belonging in the trigonal division of the hexagonal system. (La Forge)

Trigonal system. According to some crystallographers, the trigonal (or rhombohedral) division of the hexagonal system, regarded as a system by itself. (La Forge)

Trigonometrical survey. A survey accomplished by the trigonometrical calculation of lines after careful measurement of a base line and of the angles made with this line by the lines toward points of observation; generally preliminary to a topographical survey (Standard). *See* Triangulation.

Trilla (Mex.). 1. A heap of ore. 2. A heap of slimes on the *patio*. (Halse)

Trilling. A compound crystal consisting of three individuals. (Webster)

Trimerite. A rare mineral consisting of the silicates of berylium, manganese and calcium. (Century)

Trimetric. In crystallography, same as orthorhombic. (Standard)

Trimmer. 1. (Eng.). A piece of bent wire by which the size of the flame of a safety lamp is regulated without removing the top of the lamp. *See* Pricker. 2. (No. of Eng., So. Wales) One who arranges coal in the hold of a vessel (collier, ship) as the coal is discharged into it from bins. (Gresley)
3. The person who sorts the coal in the railway cars after it is dumped into them. (Roy)
4. (Scot.) One who cleans miners' lamps. (Barrowman)

5. In coal storage, an apparatus used for piling coal in gradually increasing piles made by building up at the point of the cone or top of the prism. (Webster)

Trimorphism. In crystallography, the property of crystallizing in three fundamentally different forms of the same chemical composition. (Standard)

Trincha (Mex.). 1. Piled waste used for walling levels. 2. A coke fork. (Halse)

Trinchera (Mex.). A roughly-stacked pile of rock or ore. (Dwight)

Trincho (Colom.). 1. A trench. 2. A dam of wood, earth and stone. (Halse)

Trinkerite. A red to brown mineral resembling tasmanite in composition, found in brown coal in Istria and Styria; it has a specific gravity of 1.025, fuses at 168° to 180° C., and is soluble in hot benzol. (Bacon)

Trinidad pitch. Trinidad asphalt. The deposit of solid or semi-solid bitumen constituting the Pitch Lake of Trinidad. (Bacon)

Trip. 1. The cars hauled at one time by mules, or by any motor, or run at one time on a slope, plane, or sprag road. A train of mine cars. (Steel). 2. An automatic arrangement for dumping cars; a tipper; a kickup.

Tripestone. A contorted concretionary variety of anhydrite. (Power)

Trip hammer. A massive tilt hammer, in which the lever is raised by wipers. Used especially for shingling. (Webster)

Triphane. In mineralogy, same as Spodumene. (Standard)

Triphylite. *See* Lithiophilite.

Triple-entry. A system of opening a mine by driving three parallel entries for the main entries. (Steel)

Triple-entry room-and-pillar mining. *See* Room-and-pillar method.

Triplet (No. of Eng.). A tipper; a kickup (Gresley). *See* Trip, 2.

Triplite. A fluophosphate of iron and manganese principally, containing also calcium and magnesium. Dark brown, and monoclinic. (Webster)

Tripod drill. A reciprocating rock drill mounted on three legs and driven by steam or compressed air. The drill steel is removed and a longer drill inserted about every two feet. (Bowles)

Tripoli; Tripolite. An incoherent, highly siliceous sedimentary rock composed of the shells of diatoms or of radiolaria, or of finely disintegrated chert. (La Forge) Used as a polishing powder and for filters. Called also Polierschiefer; Rottenstone, Terra cariosa. (Standard)

Tripoline. Of or pertaining to tripoli. (Century)

Tripolite. An opal-silica, composed of the siliceous shells of diatoms. *See* Tripoli.

Tripper. 1. One who trips. 2. A tripping device or mechanism, as a device for causing the load on a conveyor to be discharged into a hopper, bin, etc.; a trip (Webster). An automatic car dump.

Trip rider. One who rides on trips and whose duty it is to throw switches, give signals, make couplings, etc. Also called Rope rider.

Trisoctahedron. In the isometric system, either of two forms of normal symmetry, enclosed by 24 faces: (*a*) the trigonal or ordinary trisoctahedron, having triangular faces, each with equal intercepts on two axes and a greater intercept on the third axis; (*b*) the tetragonal trisoctahedron (also called trapezohedron and icositetrahedron), having trapezial faces, each with equal intercepts on two axes and a less intercept on the third axis. (La Forge)

Tristetrahedron. In the isometric system, either of two forms of tetrahedral symmetry, enclosed by 12 faces: (*a*) the trigonal tristetrahedron or trigondodecahedron, having triangular faces, each with equal intercepts on two axes and a less intercept on the third axis; (*b*) the tetragonal tristetrahedron or deltoid dodecahedron, having trapezial faces, each with equal intercepts on two axes and a greater intercept on the third axis. (La Forge)

Trituradora (Sp.). Rock breaker or crushing machine. (Halse)

Triturar (Mex.). To crush or break ore; *T. con cilindros*, to crush with rolls. (Halse)

Trituration. The act of triturating or reducing to a fine powder by grinding. It is a dry process, and thus distinguished from *levigation.* (Century)

Triumph concentrator. A machine resembling a Frue vanner (*which see*), but the shaking motion is endwise instead of side to side. (Liddell)

Trivalent. In chemistry, having a valence or combining power of three. (Standard)

Trocar. 1. (Sp.) To exchange. 2. (Colom.) To pass *bateas* full of gravel and earth from hand to hand, the *peons* standing in line. (Halse)

Trocha (Sp.). A path cut through forests, especially for surveying purposes. (Halse)

Troctolite. A variety of gabbro composed essentially of feldspar and olivine, the pyroxene being subordinate. (La Forge) *Compare* Ossipyte.

Trod (Eng.). A track, road or pathway. (Webster)

Trogue. (Eng.). A wooden trough, forming a drain. (Raymond)

Troil (Corn.). A tin miner's feast. Called also a Duggle. (Pryce)

Troilite. Ferrous sulphide, FeS, occurring in nodular masses and in thin veins in many iron meteorites. By some authors regarded as identical with pyrrhotite. (Dana)

Troje. 1. (Sp.) A granary. 2. *T. de metal* (Guerrero, Mex.), deposits of quicksilver, mixed with rock, filling natural vertical holes in gypsum. (Halse)

Trolley; Trolly. 1. A small four- or two-wheeled truck, without a body. The two-wheeled trolley is used in a rolling-mill to wheel the puddle-balls to the squeezer. (Raymond)
2. The grooved wheel, fixed in bearings at the end of a flexible pole, pressed upward in rolling contact with the overhead wire to take off the electric current (Webster). The term is frequently applied to the flexible pole, which is properly *trolley pole*.
3. (Brit.) A basin-shaped depression in strata (Gresley). Also called Lum.

Trombe; Trompe (Fr.). An apparatus for producing an air-blast by means of a falling stream of water, which mechanically carries air down with it, to be subsequently separated and compressed in a reservoir or drum below. (Raymond)

Tromel (Sp.). A revolving screen; a trommel; *T. classificador*, a grading trommel; *T. de desenlodar*, a cleaning or washing trommel. (Lucas)

Trommel. 1. A revolving sieve for sizing ore (Raymond). Also called according to its various uses, Sizing trommel, Washing drum, Washing trommel. (Standard)
2. To separate coal into various sizes by passing it through a revolving screen. (Gresley)

Trompa Mex.). 1. The nose of chilled slag over a tuyère. (Dwight)
2. A water blast. (Halse)

Trompe (Fr.). *See* Trombe.

Trompille (Fr.). The air tube of a trompe (trombe) for a blast furnace. Also spelled Trompil. (Standard)

Trompo (Mex.). Foot of a stull or post. (Dwight)

Trona. An impure form of hydrous sodium carbonate. (U. S. Geol. Surv.)

Tronco (Mex.). Team of horses or mules. (Dwight)

Tronera (Mex.). Chimney; channel; flue. (Dwight)

Tront (Mid.). A long sprag fixed diagonally to the face of the coal wall. (Gresley)

Troostite. 1. A variety of Willemite, in large reddish crystals, Zn_2SiO_4, in which the zinc is partly replaced by manganese. (Dana)
2. A transition substance in steel whose limits are defined by the presence of martensite and osmondite respectively. (Webster)

Trouble. A dislocation or fault; any irregularity in a coal bed (Chance). Also called a Throw, Slide, Slip, Heave, or Check.

Trough. 1. A hollow or undulation in a mineral field, or in a mineral working (Barrowman). In geology, synonymous with Basin and Synclinal.
2. A conduit for conveying water.
3. A buddle or other vessel in which slimes are sorted in water. 4. A fire-clay box in which iron bars are subjected to the cementation process. (Webster)

Trough fault. In geology, two faults having nearly the same direction, but dipping toward each other, so that the mass of rock included between them has more or less the form of a wedge. (Century)

Trough joint (Eng.). The fissure or joint that frequently accompanies the abrupt bending of strata passing through the middle of the curvature. (Page)

Trough washer. In its simplest form it is a sloping wooden trough, 1½ to 2 feet wide, 8 to 12 feet long and 1 foot deep, open at the tail end, but closed at the head end. It is used to float adhering clay or fine stuff from the coarser portions of an ore or coal (Liddell). A log washer.

Troughman. One who takes care of the runner at pig-casting machine, while iron is being poured from ladle cars; bars out scrap and prepares the runner for the next cast. (Willcox)

Trow. A wooden channel for air or water. (Raymond)

Trowhole; Trowroad (Scot.). A steep road, down which mineral slides instead of being loaded in hutches, or cars. (Barrowman)

Trowlesworthite. A variety of granite that has been so altered by fumarole action that it consists of fluorite, orthoclase, tourmaline and some quartz, the last named having been largely replaced by the first. The name is derived from an English locality, and was given by Worth. (Kemp)

Troy. A system of weight measures formerly used for various articles, but now only by goldsmiths and jewelers (Standard). *Troy weight.* The weight system used in making assay returns for gold, silver or other precious metals.

Troy ounce. The one-twelfth part of a pound of 5760 grains; that is, 480 grains. It equals 20 pennyweights, 1.09714 avoirdupois ounces, 31.1035 grams, and has a fine gold value of $20.67 or 85 shillings. This is the ounce designated in all assay returns for gold, silver; or other precious metals.

Troy pound. A unit of weight equal to 5,760 grains, 240 pennyweights, 13.1657 avoirdupois ounces, 0.82286 avoirdupois pound, 373.2509 grams, and has a fine gold value of $248.04 or £51.

Truck. 1. A small tram-car for carrying coal, rock, or ore along a level in a mine, or out to a chute or a dump. 2. Goods paid instead of money for wages. (Roy. Com.) 3. Any of numerous vehicles for transporting heavy articles; any of various small flat-topped cars for pulling or pushing by hand used in shops or railroad stations; any strong heavy cart or wagon either horse-drawn or self-propelled. 4. An open railroad freight car. (Webster)

Truck system. Paying miners in food or merchandise instead of money (Steel). *See* Truck, 2.

True fissure vein. A fissure vein with promise of extending to great depth, in contradistinction to a *gash* vein. All mineralized fissures are true fissure veins. (Weed)

True lode. A fissure vein. (Skinner)

Trueque (Mex.). A truck or trolley (for tramway bucket). Truck of railway car. (Dwight)

True vein. An occurrence of ore, usually disseminated through a gangue of veinstone, and having more or less regular development in length width, and depth (Century). *See* Vein, *also* Fissure vein.

Truite. In ceramics, having a delicately cracked surface; said of Japan ware and porcelain. (Standard)

Truller (Corn.). A miner who wheels ore in barrows. (Standard)

Trumpeting (Eng.). A channel or passage partitioned off from a shaft or left behind the lining, usually running along one corner of the latter (Webster). Used for ventilation.

Trumpet lamp (No. of Eng.). A miner's term for a Mueseler or Belgian safety-lamp. (Gresley, 1883)

Truncheon (Som.). A sleeper (tie) for undergrcund railways (Gresley). A small railway tie.

Trunk. 1. (Mid.) A wooden box or sled in which the débris is conveyed from a small heading. 2. (Brist.) A wooden pipe or box for conveying air in the workings. 3. (York.) *See* Kibble. (Gresley) 4. A long narrow, inclined box, in which the separation of the fine ore from the earthy impurities is effected. (Whitney) 5. A launder for conveying slimes, etc. 6. To separate slimes by means of a trunk, 4, for further treatment. (Webster)

Trunking (Corn.). Separating slimes by means of a trunk, 4. (Raymond)

Trunk pumping-engine. A pump that commands the drainage of underground waters over a considerable area of mine workings, being a substitute for a number of smaller and independent pumps. (Gresley)

Trunnion. A cylindrical projection, journal, or gudgeon attached to each of two sides of a vessel, so that it can rotate in a vertical plane, as in a molding flask, a converter, etc. (Webster)

Trunnion plate. A metal-plate lining the bearing or recesses in which the trunnions rest. (Webster)

Trunt (No. Staff.). A heading driven on a level. (Gresley)

Truss. An assemblage of members, such as beams, bars, rods, and the like, so combined as to form a rigid framework; that is, one which can not be deformed by the application of exterior force without deformation of one or more of its members. (Webster)

Trying the lamp (Eng.). The examination of the flame of a safety lamp for the purpose of judging the quantity of fire damp mixed with the air. (Gresley)

Tsehong (China). A red pigment consisting of white lead mixed with aluminic, ferric, and silicic oxides; used by the Chinese in decorating porcelain. (Standard)

Tsing-lien (China). A red pigment consisting of stannic and plumbic silicates mixed with small quantities of copper oxide or cobalt and gold; used by the Chinese in decorating porcelain. (Standard)

Tub. 1. An iron or wooden barrel, box, or bucket used in a shaft, for hoisting material. 2. A Keeve. 3. A tram used underground. 4. To line with tubbing; to keep back water by tubbing. *See* Tubbing. (Webster)
5. (Eng.). A complete length of metal or timber tubbing from and inculding the wedging crib upward. (Gresley)

Tubbed back (or off) (Eng.). Springs or feeders of water found in shafts are said to be "tubbed back" (or tubbed off) when tubbing has been put in to keep the water out of the mine. (Gresley)

Tubber. In mining, a double-pointed pickax; a beele. (Standard)

Tubber man. In mining, a man who uses a tubber. (Standard)

Tubbing (Eng.). A lining of timber or metal for a shaft, especially a water-tight shaft lining consisting of a series of cast-iron cylinders bolted together, used in sinking through water-bearing strata (Webster). A shaft lining of casks or cylindrical caissons, of iron or wood. *See* Plank-tubbing. (Raymond)

Tubbing deals (Scot.). Plank put behind tubbing in a shaft. (Barrowman)

Tubbing plate (Eng.). A cast-iron segment of a ring of tubbing. (Gresley)

Tubbing wedge. A small wooden wedge driven between the joints of tubbing plates. (C. and M. M. P.)

Tube blower. A man who cleans boiler tubes. (Willcox)

Tube clamp. A clamp or clip for gripping a tube or pipe; especially, a jawed tool used in hoisting and lowering well tubes. (Standard)

Tube mill. A revolving cylinder, usually lined with silex, nearly half filled with glacial or water-worn flints, used for fine grinding of certain ores, preliminary to further treatment. The material to be ground, mixed with water, is fed through a trunnion at one end, and passes out of the opposite trunnion, as a slime.

Tube packing. A bag of flaxseed, or ring of rubber, made to occupy the space between the tube of an oil well and the bored hole to prevent access of water to the oil-bearing stratum. (Nat. Tube Co.)

Tubería (Sp.). Tubing; a set of pipes or tubes; *T. aspirante*, suction tubing; *T. de descarga*, the delivery pipe of a pump. (Halse)

Tubing. 1. The tube-lining of bore holes; casing. 2. The act of lining a deep bore hole by driving down iron tubes (Ihlseng). *See* Casing, 3.
3. Hollow cast-iron segments placed in a shaft to dam back water or sink through quicksand. Also spelled Tubbing. (Steel)

Tubo (Sp.). 1. Tube, pipe. 2. *T. de humo*, a smokestake. 3. A tunnel. (Halse)

Tub rider. (India). A trip rider.

Tubule. In geology, an irregular, hollow, twig-like calcareous concretion characteristic of the loess. (Standard)

Tub way (No. of Eng.). A tramway for handling tubs of ore, coal, etc.

Tucker (Aust.). 1. Work by which a miner is hardly able to make a living. (Century)
2. "Grub", food, or rations.

Tucker ground (Aust.). Ground containing poor or lean ore. (Davies)

Tuck-joint pointing. Pointing in which the mortar projects as a fine ridge between the stones or bricks. (Standard)

Tucurababi (Sonora, Mex.). An altered granite. (Halse)

Tucurubay (Mex.). A kind of gravel. (Lucas)

Tue-iron. 1. Same as tuyère. 2. In the plural, blacksmiths' tongs. (Standard)

Tufa. A chemical sedimentary rock composed of calcium carbonate or of silica, deposited from solution in the water of a spring or of a lake or from percolating ground water; sinter. Should not be confused with Tuff, *which see.* (La Forge Called also Calcareous tufa; Calc-tufa. *See* Travertine.

Tufaceous. Of, pertaining to, or like tufa (Webster). *Compare* Tuffaceous.

Tuff. A sedimentary rock composed of fine material—volcanic dust, so-called ash and cinders, and lapilli—explosively ejected from a volcano. Tuff may or may not be deposited in water; it may be either heterogeneous or rather well sorted, and it may be either incoherent or indurated. (La Forge) *Compare* Tufa.

Tuffaceous. Characteristic of, pertaining to, containing, or resembling tuff. Not to be confused with Tufaceous. (La Forge)

Tuff breccia. A stratified tuffaceous rock in which the fragments are angular and larger than in a tuff. (Ransome)

Tuff cone. A volcanic cone made up chiefly or wholly of tuff and other fragmentary explosively ejected material. (La Forge)

Tuft (Eng.). A soft sandstone; also calcareous deposits (Bainbridge). Probably a variation of Tufa.

Tug. (Eng.) An iron hook of a hoisting tub, to which a tackle is attached. (Webster)

Tugger (Brist.). A short chain by which boys draw tubs along. (Gresley)

Tugger boy (Brist.). One who draws small tubs or sleds underground by means of a tugger. Called Tuggerwork. (Gresley)

Tugwith (Derb.). A small pole or sapling used as a brake on a windlass or turntree. (Hooson)

Tula metal. An alloy of silver, copper, and lead, made in Tula, Russia, used in making niello, 3. (Webster)

Tully limestone. A limestone lying between the Genesee shale and the Hamilton shale, and forming the base of the Upper Devonian in central New York. (Century)

Tumbar. 1. (Mex.). To break down ore, etc. (Dwight)
2. (Colom.) To direct mine workings in such a way, that from want of proper security, they are destroyed. (Halse)

Tumbe (Mex.). The act of breaking and removing ore. (Dwight)

Tumble. To smooth, clean, or polish, as castings, by friction with each other or with a polishing material, in a rotating box or barrel; to rattle. (Standard)

Tumbler. 1. A projecting piece on a revolving shaft or rockshaft, for actuating another piece. In dredges, there is an upper and a lower tumbler supporting the bucket line. (Weatherbe)
2. (Scot.). A tipping apparatus for tubs or wagons. (Barrowman)
3. (No. of Eng.) A stop, scotch, or catch, affixed to each deck of a cage for keeping the tubs in place. (Gresley)
4. (Derb.) Any stone that is too large to go into the hoisting bucket. (Hooson)

Tumble-up (So. Wales). Space by the side of the haulage way for the empty tram or car to be turned over so that the full car or tram can pass it.

Tumbling barrel. A revolving cask or barrel in which nails are polished, as by mutual attrition, or in which small castings are put to break out thin cores. Called also, Rattle barrel, Rattler, Rumbler, and Tumbling box. (Webster)

Tumbling crank (Scot.). A crank on the end of the pump shaft for giving reciprocating motion. (Barrowman)

Tumbling shaft. The cam shaft used in stamp mills. (Century)

Tumbling tom (Eng.). A car-tipping or dumping apparatus that turns completely over. (Gresley)

Tumbling trough. A receptacle made of pottery, operated on the principle of a tumbler tank, for dumping nitric acid at intervals in the manufacture of sulphuric acid. (Standard)

Tummals; Tummels (Corn.). A great quantity, or heap, as of ore.

Tumpago (Sp. Am.). Low-grade gold. (Lucas)

Tumphy (Scot.). A carbonaceous fire clay. A clay containing streaks of coal. (Barrowman)

Tumulose. Full of small hills and mounds. (Webster)

Tumulus. A swelling, or low dome-like hill, formed in congealed lava flows (Daly, p. 133)

Tundra (Russ.). One of the level or undulating treeless plains characteristic of Arctic regions in both hemispheres. The tundras mark the limit of arborescent vegetation; they consist of black mucky soil, with a permanently frozen subsoil, but support a dense growth of mosses and lichens, as the reindeer moss, and dwarf cespitose herbs and shrubs often showy-flowered. (Webster)

Tundra placers (Alaska). *See* Gravel-plain placers.

Tune work. Labor paid for by the day or the hour, in opposition to piecework. (Century)

Tungsten. A rare element of the chromium group found combined in certain minerals, as wolframite and scheelite, and isolated as a hard, brittle, white or gray metal. Symbol, W; atomic weight, 184.0; specific gravity, 16.6 to 19.0. (Webster)

Tungsten steel. An alloy steel containing from 6 to 10 per cent of tungsten. An extremely hard alloy which does not lose its hardness by friction with iron, and is hence used for iron-cutting tools and for magnets. (Standard)

Tungstic ocher. Same as Tungstite, WO_3. (Standard)

Tungstite. A yellow or yellowish-green pulverulent mineral, tungsten trioxide, WO_3. (Dana)

Tunna (Wales) A hoisting bucket; a bowk; a kibble. (Gresley)

Tunnel. **1.** A tunnel, strictly speaking, is a subterranean passage open at both ends. An *adit*, if continued through a hill, would then be a tunnel (Skinner). Any level or drift in a mine open at one end, or which may serve for an adit. *See* Adit (Century). Often used as a synonym for Adit, Drift, Gallery.
2. (Penn.) A crosscut through or across barren measures is often called a tunnel, or a rock tunnel; an anthracite term.
3. In marble quarrying, the term is applied to a subterranean working level, or incline, having a roof of undisturbed rock. (Bowles)
4. To make an opening, or a passageway through or under, as to tunnel a mountain; to cut, blast, or otherwise make a tunnel. **5.** A chimney opening for the passage of smoke; a flue; funnel. **6.** In sulphuric acid manufacture, a tube of sheet lead, connecting adjoining leaden chambers when used in series. (Webster)

Tunnel blasting. A method of heavy blasting in which a heading is driven into the rock and afterwards filled with explosives in large quantities, similar to a bore hole, on a large scale, except that the heading is usually divided in two parts on the same level at right angles to the first heading, forming in plan a "T", the ends of which are filled with explosives and the intermediate parts filled with inert material like an ordinary bore hole (Du Pont). Similar to Gopherhole blasting.

Tunnel borer. Any boring machine for making a tunnel; often a ram armed with cutting faces operated by compressed air. (Standard)

Tunnel column. A heavy bar used for mounting machine drills in large drifts or tunnels, and usually holding two machines. (Gillette, p. 96)

Tunnel disease. **1.** Caisson disease. **2.** Ankylostomiasis. (Webster)

Tunnel head. The top of a shaft furnace. (Raymond)

Tunnel hole. The throat of a blast furnace. (Century)

Tunnel kiln. A lime kiln having a tunnel for the consumption of coal, as distinguished from a flame-kiln, where wood is burned. (Standard)

Tunnel right. The right of the possession of all veins or lodes encountered, and not previously known to exist, within 3,000 ft. from the surface (portal) of a tunnel driven for development, and 300 feet on each side of the center line of the tunnel, if the vein is parallel with the tunnel. If the vein crosses the tunnel at right angles a claim may be located 1,500 feet on either side of the tunnel, or partly on one side and partly on the other, but not exceeding 1,500 feet in length. (U. S. Min. Stat., pp. 165, 175)

Tunnel set. Timbers 6 to 8 inches in diameter and of sufficient height to support the roof of the tunnel. They are sometimes set upon sills and usually capped with short cross pieces. (Chandler *v.* Utah Copper Co., 135 Pac. Rept., p. 106)

Tunnel shaft. A shaft sunk, as in a hill, to meet a horizontal tunnel. Called also Tunnel pit. (Standard)

Tunnel system. A method of mining, in which tunnels or drifts are extended at regular intervals from the floor of the pit into the ore body. The extension of the drift beyond the working face is made great enough to facilitate the handling of several cars at a time. The ore is mined above the drift level, and the cars are loaded by lifting short boards which span an opening, through the lagging on, and above, the center line of the drift. The method avoids the construction of raises and chutes, and facilitates the filling of the cars. (Young)

Tup. 1. (Eng.) An early custom of covering with lighted candles the last corf of coal sent to the bank at the beginning of the fortnight's holiday at the end of the year when stock was taken and no coal hoisted. This was called "sending away the tup." (G. C. Greenwell)
2. The ram or monkey, or falling weight of a pile driver, drop hammer. etc. (Webster)

Tupia (Sp.). A dike or dam. (Lucas)

Tupiar (Sp.) To make dikes or dams.

Turba (Sp.). 1. Turf, peat. 2. Dung mixed with coal and molded into *adobes* and used as fuel in brick kilns. (Halse)

Turbary (Eng.). An easement to dig turf or peat on another's land; also the ground where the turf is dug. (Webster). A right of *turbary* is confined to such quantity of land as is sufficient for the house into which the common is appendant. (Bainbridge)

Turbera (Sp.). Peat deposit. (Lucas)

Turbina (Sp.). A turbine. (Dwight)

Turbine. 1. A rotary motor actuated by the reaction, impulse, or both, of a current of water under pressure. There are several types. 2. A form of steam engine analogous, in construction and action, to the water turbine. There are two distinct kinds, typified in the de Laval and the Parsons and Curtis turbines. (Webster)

Turbine pump. A turbine wheel arranged to raise water by rotation in the opposite direction to that in which it would turn if used as a motor. (Standard)

Turf. Peat. There are several varieties, as white, brown, black, stone, gas, or candle turf. (Power)

Turfary (Eng.). A place where turf or peat may be got. (Webster)

Turf charcoal. Same as peat charcoal. (Standard)

Turfing iron; Turfing spade. An implement for cutting and paring off turf. (Webster)

Turf spade. A long narrow spade for cutting and digging turf, peat, etc. (Standard)

Turgite; Hydrohematite. An iron ore intermediate between hematite and limonite, consisting of hydrous ferric oxide, $2Fe_2O_3.H_2O$. (Dana)

Turkey-fat (Mo.). A local name for a variety of smithsonite, colored yellow by greenockite; so called from its appearance. (Chester)

Turkey slate. A whetstone or honestone. *See* Turkey stone. (Power)

Turkey stone. 1. A very fine, close-grained stone containing about 75 per cent silica, and 25 per cent calcite. Quarried in the interior of Asia Minor. Once very popular for sharpening mechanics' tools but now superseded largely by Arkansas and Washita oilstone (Pike). Novaculite; also called Turkey slate.
2. Turquoise. (Standard)

Turkis (Archaic). A turquoise. (Standard)

Turkois. Same as Turquoise. (Standard)

Turmeric paper. A test paper colored yellow by turmeric, and used for testing alkaline substances when the color changes from yellow to brown, and for boric acid which turns it to a reddish brown. (Webster)

Tur-min-tine. A petroleum substitute for turpentine. (Bacon)

Turn. 1. The time or period during which coal, etc., is raised from the mine. Called Run in Arkansas. A shift. 2. To open rooms, headings, or chutes off from an entry or gangway. 3. The number of cars allowed each miner. *Good turn*, many cars for each miner. (Steel)
4. (Eng.) A pit sunk in some part of a drift. (Webster)
5. To draw or wind coal up a shaft or up an inclined plane to the surface. 6. Curved tram rails laid round a corner or turn, often made of cast iron. (Gresley)
7. To set (undried bricks) on edge to facilitate drying. (Standard)

Turn again (No. Staff.). A change in the direction of the dip of the strata. (Gresley)

Turn barrel (Mid.). A hand windlass; also called Jack roll. (Gresley)

Turn bat. A wooden stick used in turning the tongs which hold a bloom under the hammer. (Raymond)

Turn beam (Eng.). Either of the beams on which a kind of self-acting hoisting machine turns. (Webster)

Turnerite. A yellowish-brown variety of monazite. (Standard)

Turnhouse (Corn.). The point where the miner turns from a crosscut along the course of a lode (Davies). The first cutting on the lode after it is cut in a crosscut. (Min. Jour.)

Turning. 1. (Eng.) Drilling a shot hole by hand. (Gresley)
2. In ceramics, the process of removing the surface of green pottery to make its shape true before firing. (Standard)

Turning out (So. Staff.). Bringing coal to the skips. *See* Turnout, 2. (Gresley)

Turno (Mex.). A shift of work. (Dwight)

Turn-off. 1. (Aust.) The point where a branch tram line leaves the main line.
2. (Aust.) A siding or passing place for skips on a haulage road (Power). A turnout.

Turnout. 1. A siding or by-pass upon an underground haulage-way. (Gresley)
2. (Ark.) To shovel coal toward the track for more convenient loading. (Steel)

Turn pulley. A sheave fixed at the inside end of an endless- or tail-rope hauling plane, around which the rope returns. A tail sheave. (C. and M. M. P.)

Turn stakes (Eng.). A windlass. (Gresley)

Turntable. A revolving platform on which cars or locomotives are turned around. (C. and M. M. P.)

Turntree (Derb.). A sort of windlass for hoisting ore. (Hooson)

Turpentine substitutes. Petroleum products usually intermediate between gasoline and illuminating oil (49° naphtha). They vary in gravity from 40° to 58° Bé., and are said to be more homogeneous than burning oils. As they are designed for paint thinners and for admixture with turpentine, they should evaporate without leaving residues or stains. (Bacon)

Turquesa (Sp.). Turquoise. (Dwight)

Turquoise. Hydrous phosphate of aluminum colored by a copper compound, $AlPO_4.Al(OH)_3+H_2O$. Used for the well-known gem of the same name. (Dana)

Turrelite. A Texas asphaltic shale. (Bacon)

Turtle stones. Large nodular concretions found in certain clays and marls. In form they have a rough resemblance to turtles, and this appearance is increased by their being divided into angular compartments by cracks filled with spar, reminding one of the plates on the shell of a turtle. They are common in the cretaceous marls of the Northwest territories, Canada. (Roy. Com.) *See* Septarium.

Tushkar. *See* Tuskar.

Tuskar (Iceland). A turf cutter; a peat spade (Webster) Called also Tushkar; Twiscar.

Tusru (Japan). A pick used for loosening auriferous gravel preliminary to washing. (Lock)

Tut (Corn.). To perform a piece of work at a fixed price. (Pryce)

Tutunia. A white alloy consisting chiefly of tin with varying proportions of antimony, copper, bismuth, and sometimes brass or steel; for making tableware, etc. (Standard). A trade-name for Britannia metal.

Tutenag. 1. A white alloy, resembling German silver, used in making tableware, etc., with varying proportions of copper, zinc, and nickel, and sometimes a little lead or iron. 2. Zinc or spelter, especially that from China and the East Indies. (Standard)

Tut money (Eng.). Pay for tutwork, overtime, etc. (Webster)

Tutty. An impure zinc oxide obtained as a sublimate in the flues of zinc-smelting furnaces, and used as polishing powder. (Standard)

Tutwork (Corn.). Excavation paid for by measure or by weight, an extra credit being usually allowed for timber work, and a debit charged for certain sundries, as candles, explosives, tools, etc., supplied by the mine owner. (Webster)

Tuyère; Tweer; Twyer; Twere. A pipe inserted in the wall of a furnace, through which the blast is forced into the furnace. Usually the tuyère enters through an embrasure in the masonry (tuyère-arch). A nozzle or interior pipe is frequently inserted at the inner end of the tuyère. By changing the nozzle, the size of the opening for the blast may be thus regulated without changing the tuyère. The latter is either an annular hollow casting of iron (box-tuyère) or bronze (bronze tuyère), or a coil of iron pipe. In either case, water is continually circulated through it, to protect it and the nozzle from the action of the melting materials in the furnace. Spray-tuyères are open box-tuyères, in which a spray of water, instead of a current, is employed. This is vaporized by the heat, and passes away as steam. (Raymond)

Tuyère arch. An arch in a blast furnace to admit a tuyère (Standard). *See* Tuyère.

Tuyère man. One who fits and tests tuyères, plates and coolers that they may be ready for replacement in a furnace on short notice. (Willcox)

Tuyère pipe. A tuyère, or a pipe leading to a tuyère. (Standard)

Tuyère plate. A plate in the side of a forge through which the tuyère passes. *See* Bloomery.

Twaddell. A form of hydrometer for liquids heavier than water, graduated with an arbitrary scale such that when the readings are multiplied by 0.005, and added to unity give the specific gravity. (Webster)

Tweer; Twere. *See* Tuyère.

Twibill (Eng.). A strong pick generally with a rectangular eye, used for stonework (Gresley). A tool like a pickax, but having instead of the points, flat terminations, one parallel to the handle, and the other perpendicular to it. (Webster)

Twig. 1. A divining rod. 2. A thin strip of plastic fire clay used in ceramic modeling, especially in imitation basket work. (Standard)

Twin boy (Brist.). A small boy employed underground to push trams along a twinway. (Gresley)

Twin crystals. Crystals in which one or more parts, regularly arranged, are in reverse position with reference to the other part or parts. They often appear externally to consist of two or more crystals symmetrically united, and sometimes have the form of a cross or star. They also exhibit the composition in the reversed arrangement of part of the faces, in the striæ of the surface, and in reentering angles; in certain cases the compound structure can only be surely detected by an examination in polarized light (Dana).

Twin entry. A pair of parallel entries, one of which is an intake and the other the return air-course. Rooms can be worked from both entries. Often called double entry.

Twinning axis. The axis about which one part of a twin crystal may be conceived to have been rotated 180° with relation to the other part. (La Forge)

Twinning law. The special and characteristic method according to which twin crystals of any mineral are formed. (La Forge)

Twinning plane. In a twin crystal, a plane normal to the twinning axis. (La Forge)

Twin seam (Aust.). Two seams of coal so close together that they can be worked in conjunction, or one following closely on the other. (Power)

Twin way (Brist.). Two branch roads one on either side of a main road driven to the working face, through which trams are pushed by twin boys. (Gresley)

Twiscar. *See* Tuskar.

Twitch; Twith (No. of Eng.). A pinch in a vein. (Power)

Two (Scot.). A cageful of men (Gresley). A term no doubt originating when cages were small and could accommodate only two men.

Two throws (Eng.). A depth of about 12 feet when the débris from sinking shaft has to be raised to surface by two lifts or throws with the shovel (one man working above another). At this point the employment of a hand windlass becomes necessary. (Gresley)

Twyer. *See* Tuyère.

Tye. 1. (Eng.) The point where two veins cross each other or where two pipes cross obliquely. (Hunt)
2. (Corn.) An adit or drain. (Davies)
3. (Corn.) A sluice box for the extraction of the heavy sands in mill tailings. Sometimes spelled Tie. (Raymond)

Tyer; Tier of pumps (Corn.). A set of pumps of which the lower pump or piece is called the Driggoe, but more frequently the working piece. (Pryce)

Tying (Corn.). The washing of ore in a strake, tye, or launder.

Tymp. 1. A hollow iron casting, cooled interiorly by a current of water and placed to protect the tymp-arch, or arch over the dam, in a blast furnace having a fore-hearth. *See* Open front. (Raymond)
2. (Eng.) A horizontal roof-timber in a coal mine; a cap or lid. (Standard)

Tymp-arch. The arch covering the fore hearth of a blast furnace. (Standard)

Tymp-plate, Tymp stone. A plate or stone forming a tymp. (Standard). *See* Tymp-stone.

Tymp-stone. A large clay plug filling an open space in the front jackets of a smelting furnace, through which the tap-hole passes. (Standard)

Type locality. The place at which a formation is typically displayed and from which it is named; also the place at which a fossil or other geologic feature is displayed in typical form. (Ransome)

Type metal. An alloy used for making type. It consists essentially of lead, (four parts) and antimony (one part), often with a little tin, nickel or copper. It expands slightly on cooling. (Webster)

Types (Scot.). Irregularities in a mine roof; also called Lypes. (Gresley)

Type specimen. The specimen or individual on which the original scientific description of a given species or subspecies is based. (Webster)

Typhonic rocks. Brogniart's name for rocks that have come from the depths of the earth, *i. e.*, plutonic and eruptive rocks. Typhon is used as a synonym of boss or stock. (Kemp)

Tyrite. A variety of fergusonite found near Arendal, Norway. (Century)

Tyrolite. A hydrous arsenate of copper, occurring in orthorhombic crystals, and in aggregates having a foliated micaceous structure. (Century)

Tyth (Eng.). An ancient custom or duty which miners gave to the priests. Usually every twentieth dish. (Hunt)

U.

Ucha (Sp. Am.). Llama-dung. *See* Taquia. (Halse)

Uda. 1. In ceramics, a purplish-brown pigment used in the decoration of Hindu pottery. 2. Glazed pottery thus decorated. (Standard)

Uged (Derb.). Loose, weak, liable to fall, sounding hollow, or unsound. (Gresley)

Uintahite. *See* Gilsonite.

Ulexite; Cotton ball. Hydrous borate of sodium and calcium, probably $NaCaB_5O_9.8H_2O$. Contains theoretically 43 per cent B_2O_3. Analyses of the natural mineral show 42 to 45.3 per cent B_2O_3. (U. S. Geol. Surv.). Called also Boronatrocalcite.

Ullmannite. Sulphantimonide of nickel, NiSbS or $NiS_2.NiSb_2$; arsenic is usually present in small amount. (Dana)

Ultimate analysis. The determination of the elements contained in a compound as distinguished from *proximate analysis*, which is the determination of the compounds contained in a mixture. (Standard)

Ultimate tensile strength. Same as tensile strength. (C. M. P.)

Ultrabasic. Containing less than 35 per cent silica; containing virtually no quartz or feldspar and composed essentially of ferromagnesian silicates, metallic oxides and sulphides, and native metals, or of all three; said of some igneous rocks and of most varieties of meteorites (La Forge)

Ultramarine. 1. A pure blue pigment, prepared by powdering lapis lazuli. 2. An artificial pigment resembling the above in composition, but having commonly a tinge of violet. Also called French blue, Gmelius blue. 3. Any of several pigments, most of which are produced by modifications of the above processes, as green ultramarine, purple ultramarine. (Webster)

Ultramarine ash. A pigment used for gray tints and made by grinding the residue from lapis lazuli after the natural ultramarine has been removed. (Standard)

Ultramarine yellow. A lemon-yellow pigment consisting of barium chromate. (Webster)

Ultra-violet. Outside of the visible spectrum at its violet end; said of rays more refrangible than the extreme violet rays (Webster). Willemite when exposed to these rays displays a bright green color. Doubtful zinc ore is often roughly tested in this manner.

Umangite. A selenide of copper, CuSe Cu_2Se, in dark red masses. (Webster)

Umber. A chestnut-brown to liver-brown hydrated ferric oxide, containing manganese oxide and clay; used as a pigment; also, the color. As found in nature the oxide is called Raw umber, and when heated, so as to produce a reddish brown, it is called Burnt umber. *Cologne* or *German umber* is a brownish pigment from lignite. (Standard)

Umbral. In geology, the eleventh series of the Pennsylvania system of rocks, comprising substantially the Mauch Chunk red shale of the Upper Subcarboniferous (Standard). Now obsolete.

Umbrella. A bonnet, or hood over a hoisting cage. (Gresley)

Umiak (Alaska)). A large, Eskimo boat made of skins; it is larger than kayak.

Umpé (Sp., Am.). Fire damp; foul air. (Lucas)

Umpire. 1. A person to whose sole decision a controversy or question between parties is referred (Webster), as one who performs control assays. 2. An assay made by a third party to settle a difference found in the results of assays made by the purchaser and seller of ore.

Umptekite. A sodium-rich variety of syenite composed essentially of microperthite and sodic amphibole, with a little nephelite and in some phases a little aegirite. (La Forge) The accessory minerals are numerous. (Kemp)

Unconformability. *See* Unconformity.

Unconformability by erosion. The presence of an irregular sinuous surface of contact between two contiguous strata, indicative of intervening elevation and erosion, not necessarily accompanied by flexure. (Standard)

Unconformability of dip. Discrepancy between the dip of an overlying and an underlying stratum, indicating a movement of the lower stratum before the deposition of the upper one; ordinary unconformability, referred to when no qualifying epithet is used. (Standard)

Unconformability of overlap. Discrepancy in areal extent between two contiguous superimposed strata, even where they have the same dip, the edge of one stratum overlapping that of the other; indicative of gentle subsidence without perceptible folding. Called also by European geologists *unconformability* of *transgression*. (Standard)

Unconformable. Having the relation of unconformity to the underlying rocks; not succeeding the underlying strata in immediate order of age and in parallel position. (La Forge)

Unconformity; Unconformable. 1. Discordance in attitude with the underlying rocks, due to overlap or to a lapse in deposition, during which the rocks beneath were deformed or partly eroded away or both. 2. The surface of contact between unconformable strata and the rocks beneath them. (La Forge)

Unctuous. Having a greasy, oily, or soapy feel when rubbed or touched by the fingers, as talc, serpentine, etc.

Undercast. An air course carried under another air course or roadway (Steel). *Compare* Overcast.

Under clay. A stratum of clay beneath a coal bed often containing roots of coal plants, especially *Stigmaria*. (Webster)

Undercliff. 1. (So. Wales) An argillaceous shale forming the floor of many coal seams. (Gresley)
2. (Eng.). That portion of a cliff which has fallen *en masse* along a considerable line of coast, and forms a subordinate terrace between the sea and the original shore (Page). *Compare* Talus.

Undercurrent. A large, flat, broad, branch sluice, placed beside and a little lower than the main sluice. This apparatus is paved and riffled like the sluice, but being much wider than the latter, allows the water to spread out in a thin sheet over its surface, thereby so abating the velocity of the current that the very fine gold, including the rusty particles, is more apt to be caught here than in the sluice. (Hanks)

Undercut. 1. To undermine, to hole, or to mine. To cut below or in the lower part of a coal bed by chipping away the coal with a pick or mining machine. It is usually done on the level of the floor of the mine, extending laterally the entire face and 5 or 6 feet into the material. 2. In founding, the part of a molder's pattern that would break the sand if drawn vertically from an ordinary mold. (Standard)

Undercut quarry. A quarry in which the walls slant outward (overhang working face) so as to make the floor space wider with increasing depth. (Bowles)

Undercutting. A term applied to the process of cutting under the face of the coal with a machine so it can be shot down readily. (Consolidated Coal Co. *v.* Gruber, 188 Illinois, p. 589). *See* Undercut.

Under-dip coal (Scot.). Coal extending below the haulage level at the bottom of the shaft. (Barrowman)

Underearth (Forest of Dean). A hard fire clay forming the floor of a seam of coal. (Gresley)

Underedge stone (Forest of Dean). The floor of an iron-stone mine. (Gresley)

Underfire. 1. In ceramics, to fire insufficiently; to shortfire. 2. To fire from beneath. (Webster)

Underflow. In geology, the water flowing beneath the beds of rivers, and also under the bottom lands of the river valleys, especially in arid regions. (Standard)

Under-getting (Eng.). *See* Shorts, 3.

Underglaze. In ceramics, a color applied before the glaze is put on. (Webster)

Underground milling. *See* Underhand stoping.

Underground shaft. A shaft sunk from an adit, tunnel or working level, through which mining operations are conducted. The upper end terminates underground. A winze or raise becomes an underground shaft when equipped and used for hoisting and the conduct of other mining operations.

Underground station. 1. An enlargement of an entry, drift, or level at a shaft at which cages stop to receive and discharge cars, men, and material. 2. An underground place in which there are installed transformers, switchboards, or electrical machines other than portable motors, or any one of them. (H. H. Clark). 3. A pump station.

Underground-water. *See* Ground water.

Underhand quarrying of panel cores (Mitchell system). *See* Underhand stoping.

Underhand stoping. Mining downward. The stope may start below the floor of a level and be extended by successive horizontal slices, either worked sequentially or simultaneously in a series of steps. The modifications consist in the working of the block by a series of slices parallel with the dip, each slice being worked from the top down and the slices being taken in sequence. The stope may be left as an open stope or supported by stulls or pillars. Filling can be used after the stope has been finished or may follow the stope as a back fill (Young). Sometimes called Horizontal cut underhand, Underhand quarrying of panel cores (Mitchell system), Underground milling, and Open stope method.

Underhand work. Picking or drilling downward. (Ihlseng)

Underhole; Undermine. To mine out a portion of the bottom of a seam, by pick or powder, thus leaving the *top* unsupported and ready to be blown down by shots, broken down by wedges, or mined with a pick or bar (Chance). *See* Undercut. In England the terms Jad, Hole, Undercut, Kirve, and Bench are synonymous.

Underlay; Underlie. 1. (Corn.) The departure of a vein or stratum from the vertical, usually measured in horizontal feet per fathom of inclined depth. Thus a dip of 60° is an underlay of three feet per fathom. The underlay expressed in feet per fathom is six times the natural cosine of the angle of the dip (Raymond). The complement of Dip; Hade. 2. The downward extension of a vein or bed beneath the ground. Mineral bodies lying under a given tract, though not outcropping on surface. (Weed)

Underlay shaft; Underlier. A shaft sunk in the footwall and following the dip of a vein.

Under-level work (Clev.). Mining ironstone by driving drifts into the hillside, instead of sinking shafts. (Gresley)

Under-level drift (Eng.). A drift from a pumping pit, to free dip workings from water. (Bainbridge)

Underlie. 1. (Corn.). *See* Underlay, 1 and 2.
2. In geology, to occupy a lower position than, or to pass beneath; said of stratified rocks over which other rocks are spread out. (Century)

Underlier (Eng.). *See* Underlay shaft.

Underlooker (Lanc.). One who has the care and superintendence of the miners and of the workings, who receives his orders from the manager, and to whom the overmen and deputies report; a mine superintendent. (Gresley)

Underlying. Lying under or beneath; fundamental; as underlying strata. (Webster)

Undermine. To excavate the earth beneath, or under part of; to form a mine under (Webster). *See* Undercut; Underhole.

Underpinning. 1. Building up the wall of a mine-shaft to join that above it. (Gresley)
2. The act of supporting a superior part of a wall, etc., by introducing a support beneath it. 3. A solid structure, as a new foundation or other support. (Century)

Under-poled. A term used in copper refining to designate copper not poled enough to remove all suboxide, and which has solidified with a concave surface. *See* Overpoled and Tough pitch.

Underply (Scot.). A band or division of the lower portion of a thick seam of coal. *See* Mining ply.

Under reamer. An oil-well tool used for enlarging the hole below a drive shoe, etc. (Nat. Tube Co.)

Under seams (Scot.). Lower or deeper coal seams. (Gresley)

Under-shot wheel. A wheel moved by water passing underneath. (Webster)

Undersize. That part of a crushed material which passes through a screen.

Under the top (Eng.). A road in which a layer of coal is left standing to form the roof is said to be "under the top." (Redmayne)

Underthrust. In geology, a deformation produced on immediately underlying strata by an advancing overthrust mass. It may be a forward movement in a parallel thrust plane, or an overturning or crushing of the strata. (Standard)

Underviewer; Underlooker (Eng.). In coal mining, an underground foreman; in metal mining, a mining captain.

Underweight (Aust.). The weight of the roof which advances along the face of the coal, following the process of undercutting, in longwall work, and breaks down the portion that has been undercut.

Undisturbed. Rocks that lie in the positions in which they were originally formed. *Compare* Disturbed. (Roy. Com.)

Undulating. Rising and falling like waves. Said of beds that are bent into alternate elevations and depressions.

Unholed (York.). Bordgates or other headings not driven through into the adjoining roadway. (Gresley)

Uniaxial. Having but one direction in which light passing through the crystal is not doubly refracted. (La Forge)

Uniclinal. Sloping in one direction; a monoclinal.

Unión (Sp.). Coupling of wire rope or of pipe. (Dwight)

Union shop. A shop or mine run according to the requirements of a trade-union. *Compare* Open shop.

Unisilicate. In mineralogy, a salt of orthosilicic acid. (Standard)

Unit. 1. Any determinate amount or quantity (as of length, time, heat, value, etc.) adopted as standard of measurements for other amounts of the same kind. (Webster)
2. A term used in smelter settlements for valuable contents of ores and is equivalent to 1 per cent of a short ton, or 20 pounds. (Lindgren, p. 17)

Univalent. Having a valence of one; monovalent. (Webster)

Universal lay. *See* Lang lay rope.

Universal train. A roll train having adjustable horizontal and vertical rolls, so as to produce sections of various sizes. (Raymond)

Unkindly lode (Aust.). A lode or vein that does not look promising. (Power)

Unlimited pump. A deep-well pump operated from the level of the ground above. (Standard)

Unpatented claims. Mining claims to which a deed from United States Government has not been received. The claims are subject to annual assessment work, in order to maintain ownership. (Weed)

Unscreened coal (Aust.). Run-of-mine coal. (Power)

Unsoiling. The act or process of removing soil, as for working a bed of brick clay. (Standard)

Unsoundness. A quarry term that refers to all cracks or lines of weakness other than bedding planes that may cause rock to break before or during the process of manufacture. Various types of unsoundness are known locally as "joints," "headers," "cutters," "hair lines," "slicks," "seams," "slick seams," "dry seams," "dries," and "cracks." (Bowles)

Unstratified. Not formed or deposited in beds or strata. (La Forge)

Unwater. To pump water from mines. (Gresley)

Unwrought; Unworked (Eng.). Coal or other mineral which has not been mined or worked away. (Gresley)

Up. 1. (Eng.) A stall or heading is said to be *up* when it is driven or worked up to a certain line (a fault, hollows, boundary, etc.), beyond which nothing further is to be worked. 2. (Eng.) On the bank or on the surface. (Gresley)

Up-brow (Lanc.). An inclined plane worked to the rise. (Gresley)

Upcast. 1. The opening through which the return air ascends and is removed from the mine (Gresley). The opposite of downcast or intake.
2. An upward current of air passing through a shaft, or the like. (Century)
3. To cast or throw upward; to turn upward. (Webster)
4. In geology, same as *upthrow;* opposed to *downthrow, downcast;* as, the *upcast* side of a fault. (Standard)

Upcast shaft. *See* Upcast, 1.

Upcast pit (Newc.). The shaft up which the air ascends when ventilating the mine (Min. Jour.). *See* Upcast, 1.

Updraft kiln. A kiln in which the heat enters the chamber from the bottom and passes up through the ware. (Ries)

Upheaval. A lifting up, as if by some force from below, of stratified or other rocks. (Roy. Com.)

U-pipe stove. A common type of heat-recuperation furnace. (Ingalls, p. 361)

Up-leap (Mid.). A fault which appears as an upthrow. (Gresley)

Uplift. Elevation of any extensive part of the earth's surface relatively to some other part; opposed to Subsidence. (La Forge)

Up-over. Designating a method of shaft excavation by drifting to a point below, and then raising instead of sinking. (Webster)

Up-over crib. A wedging crib placed on the top of a length of tubing, to shut off the water in a certain stratum. (Gresley)

Upper. 1. A drill hole driven in an upward direction (H. C. Hoover, p. 100).

2. In geology, designating a later period or formation; so called because the strata are normally above those of the earlier formations. (Webster)

Upper barren coal measures. The part of the Carboniferous strata of the Appalachian field which is now assigned to the Dunkard group of the Permian series. Usage now obsolete. (La Forge)

Upper leaf (Scot.). The upper portion of a seam that is separated, by a parting, into two portions. (Barrowman)

Upper productive coal measures. The part of the Carboniferous strata of the Appalachian field which is now assigned to the Monongahela group of the Pennsylvanian series. Usage now obsolete. (La Forge)

Upraise. An auxiliary shaft, a mill hole, carried from one level up toward another (Ihlseng). *See* Rise, *also* Raise, which are better terms.

Upset. 1. To increase the diameter of a rock drill by blunting the end. (Gillette, p. 52)
2. (Scot.) A narrow heading connecting two levels in inclined coal (Gresley). Sometimes used as a synonym for Raise.
3. (Aust.) A capsized or broken skip. (Power)

Upstanders (Corn.). Pieces of timber or boards fixed in the ground at a prospect shaft, to support the axletree or windlass. (Pryce)

Upstanding (Scot.). A term applied to stoop-and-room workings to denote that the pillars are in a sound condition and the roof not fallen. (Barrowman)

Up stoop (Scot.). A working room is *up stoop* or *in stoop* when its length is equal to the side of the pillar to be formed. (Barrowman)

Upthrow. The block or mass of rock on that side of a fault which has been displaced relatively upward. (La Forge). The term should be used with the definite understanding that it refers merely to a relative and not an absolute displacement.

Upthrust. An upheaval of rocks; said preferably of a violent upheaval; used also attributively. (Standard)

Uraconite. An amorphous, earthy, lemon-yellow, hydrous uranium sulphate. Uranium ocher. (Standard)

Uralite. A fibrous or acicular variety of hornblende occurring in altered rocks and pseudomorphous after pyroxene (La Forge). The word is often used as a prefix before the names of those rocks that contain the mineral. The name is derived from the original occurrence in the Urals. (Kemp)
2. A trade name for a fireproof material, chiefly of asbestos. (Webster)

Uralitization. The change of the mineral augite into the green fibrous variety of the mineral hornblende. The change is often due to weathering, but may be a result of more intense metamorphism. (Ransome)

Uranic ocher. Same as Uraconite, (Standard)

Uraninite. A complex uranium mineral containing also rare earth, radium, lead, helium, nitrogen, and other elements. Uraninite in the stricter sense is applied to crystallized forms found in pegmatites. It contains Th, Ce, La, and Yt. The mineral found in Connecticut and North Carolina is of this variety. Pitchblende is the massive form, probably amorphous, and contains no thoria, but a specimen from Gilpin County, Colo., contained 7.6 per cent zirconia. Pitchblende is found in metalliferous veins with sulphides. Both varieties contain radium. Contains from 65 to 90.7 per cent of the combined oxides UO_3 and UO_2. *See also* Nivenite. (U. S. Geol. Surv.)

Uranio (Sp.). 1. Uranium. 2. Uranium ore. (Halse)

Uranite. A general term for the uranium phosphates, autunite, or calcium uranite, and torbernite, or copper uranite, formerly classed as single species. The uranite group includes these and a few related minerals. (Webster)

Uranium. An element of the chromium group, found in combination in pitchblende and contains other rare minerals. When reduced it is a heavy, hard, nickel-white metal. Symbol, U; atomic weight, 238.2; specific gravity, 18.7. (Webster)

Uranium minerals. *See* Autunite, Carnotite, Fergusonite, Mackintoshite, Nivenite, Polycrase, Samarskite, Thorianite, Thorogummite, Torbernite, Uraninite (including Pitchblende), Uranocircite, Uranophane, Uranospinite, Yttrialite. Uranium is not found native. All uranium minerals contain radium. (U. S. Geol. Surv.)

Uran-mica. Same as Uranite. (Century)

Uranocircite. A hydrous phosphate of uranium and barium, $Ba(UO_2)_2P_2O_8+8H_2O$. (U. S. Geol. Surv.)

Uranolite. A meteorite. (Century)

Uranophane. A hydrous silicate of uranium and calcium, $CaSi.O_3.U_2SiO_8+6H_2O$. (U. S. Geol. Surv.

Uranorthorite. A variety of thorium silicate; thorite containing a small percentage of oxide of uranium. (Century)

Uranospinite. Probably an arsenate of uranium and calcium corresponding to autunite. $Ca(UO_2)_2.As_2O_8+8H_2O$. Contains about 47.6 per cent uranium, equivalent to 56.1 per cent calculated as U_3O_8. (U. S. Geol. Surv.)

Urao. Hydrous sodium carbonate, $Ka_2CO_3.NaHCO_3+2H_2O$. Trona is an impure form of urao. (U. S. Geol. Surv.)

Ure's process. The treatment of quicksilver ores by heating in iron retorts with admixture of lime. (Raymond)

Urgonian. In geology, a division of the European Lower Cretaceous characteristically developed in certain parts of France and Belgium. (Standard)

Urgue (Colom.). 1. Clay. 2. A clay band separating the vein from the wall. (Halse)

Urpethite. A yellowish-brown to to brown hydrocarbon, near ozocerite. (Standard)

Urry (local Eng.). A blue to black clay found next to coal in coal mines. (Standard)

Urtite. A name given by W. Ramsay to a light-colored rock of medium grain, consisting of nephelite in largest part, with which is considerable ægirite and a little apatite. When recast an analysis gave nephelite, 82; ægirite, 16; apatite, 2. The name is derived from the second part of Lujavr-Urt, the name of the mountain where it occurs in northern Finland. (Kemp)

Utahite. An orange-yellow iron sulphate mineral, $3Fe_2O_3.3SO_2.4H_2O$, from the Tintic district, Utah. Has a silky luster (Dana)

Utahlite. *See* Variscite.

Utilites. A general term proposed by M. E. Wadsworth for all useful geological products. His subdivisions according to uses are: *Ceramites*, fictile or ceramic materials. *Chalicites*, binding materials or limes, mortars, cements, etc. *Chemites*, chemical materials. *Chromatites*, color materials or paints, pigments, etc. *Coprites*, fertilizers or mineral manures. *Cosmites*, Decorative materials, or ornamental stones and gems. *Ignites*, pyrotechnic materials. *Lubricites*, lubricants, or friction materials. *Metallites*, ores or metalliferous materials. *Pharmacites*, mineral medicines. *Pyrolites*, refractory or fire resisting materials. *Rholites*, smelting materials, or fluxes. *Salites*, salts and saline materials. *Techtonites*, construction materials, as building and road materials. *Thermites*, fuels or burning materials, or *carbonites*. *Tribolites*, abrasives, or attrition materials. *Vitrites*, vitrifying materials, or glass, etc. (Eng. and Min. Jour., vol. 58, p. 340). These terms are not used.

Uvarovite; Ouvarovite; Uwarowit. Calcium-chromium garnet, $3CaO.Cr_2O_3.3SiO_2$. Aluminum takes the place of chromium in part. (Dana)

Uwarowit. *See* Uvarovite.

V.

Vaciadero (Sp.). A waste dump; a spoil bank. (Halse)

Vaciador (Mex.). One who dumps slag pots. (Dwight)

Vacío (Sp.). Empty; a vacuum. (Halse)

Vacuum. 1. A space entirely devoid of matter. 2. The degree of rarefaction of a partial vacuum, measured by the reduction of pressure from that of the atmosphere. (Webster) 3. A method of producing ventilation by exhausting the air from the mine. (Gresley)

Vacuum fan. A fan for creating suction or partial vacuum (Webster). An exhaust fan. *See* Vacuum, 3.

Vacuum filter. A form of filter in which the air beneath the filtering material is exhausted to hasten the process. (Century)

Vacuum pump. 1. A pump in which water is forced up a pipe by the difference of pressure between the atmosphere and a partial vacuum. 2. A pump for creating a partial vacuum in a closed space (Webster). *See* Pulsometer.

Vacuum tube. A sealed tube containing highly rarefied air or other gas, for exhibition or examination of phenomena of electric discharge between metallic electrodes projecting into the tube from the outside. (Webster)

Vadose. Extending only a short depth below the surface: said of the shallower portion of the ground water. (La Forge)

Vag (Prov. Eng.). Dried peat or turf used for fuel. (Standard)

Vagón (Sp.). A wagon; *V. de volquete, ó volteo*, a dump car; *V. de pico*, a front or side dump car. (Halse)

Vagoneta (Sp.). 1. A small open car. 2. A trolley. 3. The bucket of a rope way. (Halse)

Vaguada (Sp.). 1. Water way or stream channel. 2. Water shed or divide. (Dwight)
3. The line of intersection of two opposite slopes. (Halse).

Vale; Val. (Corn.). The place where the reserve of tin ore is placed to dry before it is put into the smelting furnace. (Davies)

Valence. The degree of combining power of an element (or radical) as shown by the number of atomic weights of hydrogen, chlorine, sodium or the like, with which the atomic weight of the element will combine, or for which it can be substituted, or with which it can be compared. (Webster)

Valencianite. An orthoclase feldspar similar to adularia, from Valencia, Mexico. (Webster)

Valentinite. Antimony trioxide Sb_2O_3, in orthorhombic crystals. (Dana)

Valle (Mex.). Valley. (Dwight)

Valley. 1. Low land bounded by hills or mountains. (Power)
2. A small, subcircular basin, eroded by solution in the crest of an uplift, and having a sink through which its sediments escape; used locally in Missouri and vicinity. (Standard)

Valley brown ore. A local name for limonite or brown iron ore. Applied in Virginia to the comparatively pure high-grade ore found in the Cambro-Ordovician limestone which forms the Valley of Virginia. *See* Mountain brown ore. (U. S. Geol. Surv.)

Valley glacier. A glacier extending into a valley (Chamberlin, vol. 1, p. 239). A glacier which occupies a valley and is fed from a névé reservoir. (Century)

Valley tile. Roofing tile made to fit in the valley of a roof. (Ries)

Valley train. A deposit of glacial outwash forming an old flood plain in a valley. (La Forge)

Valuation. 1. The act of valuing, or of estimating the value or worth; appraisement. 2. Value set upon a thing. (Webster)

Value. (1) The desirability or worth of a thing as compared with the desirability of something else; worth (Standard), as the *value* of a mine. Value is an attribute, and not a substance.
(2) In the plural, as used in mining and metallurgy, the valuable ingredients to be obtained, by treatment, from any mass or compound; specifically, the precious metals contained in rock, gravel or the like, as the vein carries good *values*; the *values* on the hanging wall. (Webster)
(3) To estimate or determine the worth of anything, as to *value* a mine.

Valve. Any contrivance, as a lid, cover, ball, or slide, that opens and closes a passage, whether by lifting and falling, sliding, swinging, or rotating, as at the opening of, or inserted in, any pipe, tube, outlet, inlet, etc., to control the flow or supply of liquids, gases, or other shifting material. (Standard)

Válvula (Sp.). Valve; *V. de seguridad*, a safety valve. (Halse)

Vamos (Sp.). To depart quickly; to decamp. (Vel.)

Vamping. The débris of a stope, which forms a hard mass under the feet of the miner. (Raymond)

Van. 1. (Corn.) A test of the value of an ore, made by washing (vanning) a small quantity, after powdering it, on the point of a shovel. Vanning is to a Cornish miner what washing in a horn spoon is to the Mexican. 2. To separate, as ore from veinstone, by washing it on the point of a shovel. *See* Vanner. (Century). 3. A shovel used in ore dressing.

Vanadic ocher. A native, yellow vanadium oxide found near Lake Superior. (Standard)

Vanadinite. Lead chlorvanadate, $3Pb_3V_2O_8.PbCl_2$. Contains when pure 19.4 per cent V_2O_5, but arsenic and phosphorus both replace vanadium, so that the mineral grades into mimetite, $3Pb_3As_2O_8.PbCl_2$, and into pyromorphite, $3Pb_3P_2O_8.PbCl_2$. Endlichite is a variety of vanadinite containing considerable arsenic. (U. S. Geol. Surv.)

Vanadium. A rare element found combined, in certain minerals (as vanadinite and descloizite) and is reduced as a grayish white metallic powder. Symbol, V; atomic weight, 51.0; specific gravity, 5.5. (Webster)

Vanadium ores. Vanadium does not occur native, but is found in the United States in the minerals carnotite, roscoelite, vanadinite, descloizite, volborthite, calciovolborthite, and ægirite. (U. S. Geol. Surv.)

Vanadium steel. Steel alloyed with vanadium (usually 0.10 to 0.15 per cent), an element which strengthens the steel and serves to remove the oxygen and possibly nitrogen. (Webster)

Vandyke brown. A deep brown pigment of uncertain identity, used by the painter Van Dyck; hence any of various brown pigments, as a natural earth resembling amber, a preparation of charred cork, a mixture of lamp black and Indian red, etc. (Webster)

Vane. In surveying, the target of a leveling staff; one of the sights of a compass, quadrant, etc. (Webster)

Vanner. **1.** A machine for dressing ore; an ore-separator; a vanning machine. The name is given to various patented devices in which the peculiar motions of the shovel in the miner's hands in the operation of making a van (*see* Van, 1) are, or are supposed to be, more or less successfully imitated (Century). *See* Frue vanner for general description of the side-shake type. There is also an end-shake type, which includes the Triumph concentrator.
2. One who vans with a shovel or pan (Webster), or one who operates a vanning machine.

Vanning (Corn.). *See* Van, 2.

Vanning machine. *See* Vanner, 1.

Vapart mill. A centrifugal grinder for pulverizing ore, coal and coke. (Ingalls, p. 509)

Vapor. **1.** Any visible diffused substance floating in the air and impairing its transparency, as smoke, fog, etc. **2.** Any substance in the gaseous state, thought of with some reference to the liquid or solid form; a gasified liquid or solid. (Webster) **3.** Foul air in a mine. (Lawver)

Vapor density. The relative weight of a gas or vapor as compared with some specific standard, usually hydrogen, but sometimes air. (Webster)

Vapor galvanizing. A process for coating metal (usually iron or steel) surface with zinc by exposing them to the vapor of zinc instead of, as in ordinary galvanizing, to molten zinc. Also called Sherardizing. (Webster)

Vaporimeter. An instrument for measuring the volume or the tension of a vapor. (Webster)

Vara (Sp.). A Spanish and Portuguese measure of length. In Mexico it is 33 inches; Brazil, 43 inches; Colombia, 31.5 inches; Central America, 33.87 inches; Spain, Cuba, Philippine Islands, and Venezuela, 33.38 inches; Chile, and Peru, 33.37 inches; Argentina and Paraguay, 34.12 inches. (Webster)

Varejón (Mex.). Pole lagging. (Dwight)

Variation. The angle by which the compass needle deviates from the true north: subject to annual, diurnal, and secular changes. Called more properly *declination of the needle* (Standard). *See* Declination.

Variation compass. A compass of delicate construction for observing the variation of the magnetic needle. (Webster)

Variegated copper ore. Bornite.

Variegated sandstone. New red sandstone. (Standard)

Varigradation. In geology, a process by which all streams of progressively increasing volume tend constantly, in a degree varying inversely with the volume, to depart slightly from the normal gradients. (Standard)

Varilla (Sp.). **1.** A boring rod. **2.** A blasting needle. **3.** A spindle or pivot. (Halse)

Variole. In petrology, a spherulite or variolite. (Standard)

Variolite. A spherulitic variety of basalt or diabase (La Forge). The rock has a pockmarked aspect and hence the name, which is a very old one. Pearl diabase is synonymous. (Kemp)

Variolitic. Of, pertaining to, or resembling variolite. (Webster)

Variolitization. That variety of contact metamorphism, that gives rise to the formation of variolite. (Standard)

Variscite; Utahlite. Green hydrous phosphate of aluminum, $Al_2O_3.P_2O_5.4H_2O$. Used as a gem (U. S. Geol. Surv.). Also called Amatrice.

Varnish. In ceramics, the lustrous surface or glaze on pottery, porcelain, etc. (Standard)

Vaseline; Vaselin. A yellowish, translucent, semisolid petroleum product, used in ointments and pomades, as a lubricant, and in other ways; a form of petrolatum. (Webster)

Vaso (Sp.). 1. A vessel. 2. (Mex.) A small adobe furnace lined with clay. 3. The shaft of a furnace. 4. The crucible of a blast furnace. 5. (Mex.) A receptacle for molten metal in front of a furnace. (Halse) 6. (Mex.) Reverberatory for smelting rich ore, or for cupelling silver. (Dwight)

Vat. 1. A vessel or tub in which ore is washed or subjected to chemical treatment, as "cyanide vat" and "chlorination vat" (Rickard). Used as synonym for Tank. 2. *See* Vate.

Vate (Corn.). A square, hollow place on the back of a calcining furnace for drying tin ore before feeding it into the furnace. Also spelled Vat. (Pryce)

V-bob. A strong frame shaped like an isosceles triangle, and turning on a pivot at its apex; used as a bell crank to change the direction of a main rod (Webster). It is used with Cornish pumping engines.

V-cut. In mining and tunneling, a cut where the material blasted out in plan is like the letter V; usually consists of six or eight holes drilled into the face, half of which form an acute angle with the other half. (Du Pont)

Veal; Voun (Scot.). A water box or chest, usually on wheels, for removing water (Barrowman). Also called Ghost.

Vee (Mid.). The junction of two underground roadways meeting in the form of a V. (Gresley)

Veerer (Som.). An old word for banksman. (Gresley)

Vees; Veez. 1. (Scot.) A kind of soft earth in a fissure or upon the sides of a dike. *See* Leatherbed. (Gresley)
2. (Scot.) The line of fracture of a fault or hitch. (Barrowman)

Vegetate. To crystallize; to exude. (Lawver)

Vegetation of salts. A crystalline concretion formed by salts, after solution in water, when set in the air for evaporation. Also called Saline vegetation. (Century)

Veia (Port.). 1. A vein. 2. *Veias* (Braz.). Ordinary plaster beds (Halse). *See* Vena, Veta, and Filon.

Vein. 1. An occurrence of ore, usually disseminated through a gangue, or veinstone, and having a more or less regular development in length, width, and depth. A vein and a lode are, in common usage, essentialy the same thing, the former being rather the scientific, the latter the miners', name for it (Century). See Lode; Fissure; Fissure vein.
The filling of a fissure or fault in a rock, particularly if deposited by aqueous solutions. When metalliferous it is called by miners a *lode;* when filled with eruption material, a *dike.* A bed or shoot of ore parallel with the bedding. Called also Blanket-deposit. (Standard)
A crack in rock filled by mineral matter deposited from solution by underground water. A lode. (Webster)
A *vein* or *lode* as used in the law applies to any zone or belt of mineralized rock lying within boundaries clearly separating it from the neighboring rock. (Iron Silver Mining Co. v. Cheeseman, 116 United States, p. 531; Mammoth Mining Co. v. Grand Central Mining Co., 213 United States, p. 77.)
Vein or lode does not mean merely a typical fissure or contact vein, but any fairly well-defined zone, or belt of mineral-bearing rock in place. (East Tintic Cons. Min. Claim, In re, 50 Land Decisions, p. 273)
2. A comparatively thin sheet of igneous rock injected into a crevice in rock. When this intrusion is large it is called a dike. (Webster)

Vein (or lode) claim. The terms "vein or lode" and "vein or lode claim" are used indiscriminately and interchangeably, and it follows that the term "vein or lode" is intended to be synonymous with the term "vein or lode claims." (Iron Silver Mining Co. *v.* Sullivan, 16 Fed. Rept., p. 832). *See* Vein; *also* Lode. (*Also* U. S. Min. Stat., pp. 37–43)

Veined. Marked or streaked with veins or lines of color in various directions, as some marbles. (Roy. Com.)

Vein minerals. The minerals occurring in veins, especially the gangue (A. F. Rogers.) Veinstone.

Vein quartz. Quartz of secondary origin and occurring in veins. (Standard)

Vein skirts (Derb.). The walls of a lode. (Power)

Veinstone. The mineral-matter filling of a vein, exclusive of the ore (Roy. Com.). Also called gangue; Lodestuff, Matrix, Vein mineral.

Veinstuff. The portion of the lode which is not ore (Skinner). *See* Veinstone.

Vein system. A term applied to the veins of a given area, district, or age, regarded as a whole. (Farrell)

Veise (Scot.). A joint in the coal strata. (Gresley) *See* Vees, 1.

Vela (Sp.). 1. A watchman; night guard. 2. A candle; *V. de sereno*, a wax candle; *V. de sebo*, a tallow candle. (Halse)

Velada. (Colom.) The third part of the night during which a watchman is employed in the mill to see that the blanketings are not stolen.

Velador (Sp.). 1. A watchman at the mines or mill. 2. A candleholder. (Halse)

Veldt (So. Afr.). A tract of land not forested, or thinly forested; a grass country. (Webster)

Velocity-head. The constant difference of height of a liquid between a level surface in a tank and a uniformly flowing jet through an orifice. (Standard)

Velocity of detonation. The velocity with which the detonation or explosion of a mass of explosives travels through the mass itself. (Du Pont)

Velvet. Profit; easily earned money. By analogy, a term used for galena in the Wisconsin zinc field when it can be separated from the blende without difficulty and sold as a by-product.

Velvet copper ore. Lettsomite. Perhaps $4CuO.Al_2O_3.SO_3.8H_2O$, in velvet-like druses; in spherical forms; bright blue. (Dana)

Vena (Sp.). 1. A small metalliferous vein; a veinlet, not over 3 inches thick; a "knife blade" vein (Dwight). Sometimes a vein within a vein. *Compare* Veta and Filón. 2. A bed or seam of compact earthy red hematite at Bilboa, Spain. 3. Diverse quality or color of earth or stone. 4. A streak, stripe, or vein of a certain color in stone or wood. 5. A channel through which underground water circulates. 6. Mineral water found underground. 7. (Fr. Guiana). The richest gravel in placer mines. (Halse)

Venanzite. A name proposed by Sabatini, an Italian petrographer, for an effusive rock from a small volcanic cone at San Venanzo, Umbria, Italy. Venanzite contains phenocrysts of olivine in a groundmass of melillite, leucite, and black mica, together with a little pyroxene, nephelite, and magnetite. Rosenbusch subsequently described the same rock under the name euktolite, but venanzite has priority. (Kemp)

Vend (Newc.). The total annual sales of coal from a colliery. (Raymond)

Veneer. In ceramics, any thin outer coating put on principally for appearance or decoration. (Standard)

Venero. 1. (Mex.) A spring of water in a mine. 2. (Colom.) A vein or bed. 3. (Arg.) A deep-seated deposit covered by large masses of barren material. 4. (Bol.) A stream-tin deposit. 5. (Peru) The pay gravel of recent placers. 6. Any mineral deposit. (Halse)

Venetian chalk. A white compact talc or steatite used for marking on cloth. (Webster)

Venetian white. A pigment consisting of a mixture of equal parts of white lead and barite. (Webster)

Venida (Mex.). A fall of earth or stones, as from a hill. (Halse)

Venilla (Sp.). A small vein or stringer. *Compare* Vena, 1. (Halse)

Vent. 1. A small aperture; a hole or opening for passage or escape, as of air, a gas, or a fluid; a volcanic vent. (Webster)
2. (Scot.) A chimney; a return airway. (Barrowman)
3. A small passage made with a needle through the stemming, for admitting a squib to enable the charge to be lighted. (Steel) 4. In founding, an opening or passage, as in a sand-mold, for the escape of gases. (Standard)

Venta (Sp.). Sale. (Dwight)

Ventanilla. 1. (Sp.) A small window. 2. (Mex.) A flat or station. 3. An opening in the door of an ore chute, sliding gate, etc., for a rope to pass through. 4. (Peru) A natural opening in rocks. (Halse)

Ventanillero (Mex.). An underground station tender. (Dwight)

Ventilación (Sp.). Ventilation; *V. artificial*, artificial ventilation; *V. diagonal*, ventilation by two shafts situated at either end of a field of exploitation; *V. natural*, natural ventilation. (Halse)

Ventilador (Sp.). A ventilator, usually some kind of fan; *V. aspirante*, an exhaust fan; *V. soplante*, a blower. (Halse)

Ventilar (Sp.). To ventilate; *V. una mina*, to ventilate a mine. (Halse)

Ventilate. 1. To cause fresh air to circulate through (to replace foul air simultaneously removed), as a room, mine, etc. 2. To provide with a vent or escape for air, gas, etc. (Webster)

Ventilating column. *See* Motive column.

Ventilating pressure. The total pressure or force required to overcome the friction of the air in mines; viz: the pressure per square foot multiplied by the cross-sectional area of the airway.

Ventilation. 1. The atmospheric air circulating in a mine. 2. The art or method of producing, distributing, maintaining, conducting, and regulating a constant current or flow of atmospheric air in mine shafts, levels, inclines, etc. (Gresley)

Ventilator. 1. A mechanical apparatus for producing a current of air underground (Gresley). As a blowing or exhaust fan.
2. A furnace for ventilating a mine by heating the upcast air.

Venturi meter. A water meter in which the flow is ascertained from the increase in velocity and consequent loss of pressure caused by the reduction in the cross-sectional area of the pipe through which the water flows. (Webster)

Venturin. A yellow powder used as an imitation of gold in japanning (Standard). *Compare* Aventurine.

Venturi tube. A conical efflux tube in which the escaping fluid flows from the smaller to the large end, and the entrance is rounded to conform to shape of the *vena contracta*. (Webster)

Vent wire. A wire used by founders to make a hole in a sand mold for the escape of air or gases. (Standard)

Venule. A small vein; veinlet. (Standard)

Venus's hair-stone. Quartz containing included acicular crystals of rutile (Standard). *See* Sagenitic quartz.

Verandeador (Colom.). An alluvial miner who works in the dry season. (Lucas)

Veraneo (Colom.). Working in alluvial mines in the dry season. (Halse)

Verano (Sp. Am.). Summer. The dry season. (Halse)

Verde (Sp.). 1. Green. 2. Verdigris. (Halse)

Verde antique. A dark-green rock composed essentially of serpentine (hydrous magnesium silicate). Usually crisscrossed with white veinlets of magnesium and calcium carbonates. Used as an ornamental stone. In commerce often classed as a marble. (U. S. Geol. Surv.)

Verde di Corsica duro (It.). A rock found on the Island of Corsica, of a changing green color, composed of diallage and labrador feldspar, and used for vases, inlaying, and other ornamental purposes. (Page)

Verde salt. *See* Thenardite.

Verdigris. A green, or greenish-blue, poisonous pigment and drug, obtained by the action of acetic acid on copper, consisting of one or more basic acetates of copper. (Webster). The green rust on copper.

Verdiones (Chile). Green stains indicative of the presence of copper. (Halse)

Verditer. 1. Verdigris 2. Either of two basic carbonates of copper used as pigments, and prepared either by grinding the mineral azurite (giving blue verditer) and the mineral malachite (giving green verditer) or artificially. (Webster)

Verifier. 1. A tool used in deep boring for detaching and bringing to the surface portions of the wall of the bore-hole at any desired depth. (Raymond)
2. In gas testing, an apparatus by which the amount of gas required to produce a flame of a given size is measured; a gas verifier. (Standard)

Verite. A glassy variety of the mica-andesties with exceptional olivine. A name derived from the Spanish locality Vera, near Cabo de Gata, and given by Osann to a post-Pliocene glassy rock, with phenocrysts of biotite and microscopic crystals of olivine and augite and sometimes plagioclase, all of which seldom form half the mass of the rock. (Kemp)

Vermiculites. In mineralogy, a group including a number of micaceous minerals, all hydrated silicates, in part closely related to the chlorites, but varying somewhat widely in composition. They are alteration-products chiefly of the micas, biotite, phlogopite, etc., and retain more or less perfectly the micaceous cleavage, and often show the negative optical character and small axial angle of the original species. Many of them are of a more or less indefinite chemical nature, and the composition varies with that of the original mineral and with the degree of alteration. The laminae in general are soft, pliable, and inelastic; the luster pearly or bronze-like, and the color varies from white to yellow and brown. The minerals included are: Jefferisite, vermiculite, culsageeite, kerrite, lennilite, hallite, philadelphite, vaalite, maconite, dudleyite, pyrosclerite. (Dana)

Vermillion. 1. A bright red pigment consisting of the sulphide of mercury. *See* Cinnabar. (Roy. Com.)
2. (Lake Sup.) The lowest of the stratified schists; the crystalline schists. (Winchell)

Vermilionette. A substitute for the pigment vermilion, made by precipitating eosin or a similar dye upon a white base, as barium sulphate, or on a mixture of this with orange lead. (Webster)

Vernier. A small movable auxiliary scale for obtaining fractional parts of the subdivisions of a fixed scale, as on any instrument of precision. (Standard)

Vernier compass (Scot.). A mining compass for measuring angles without the use of the magnetic needle. (Barrowman)

Versant. One side or slope of a mountain range; as, the east *versant.* (Ransome)

Verst (Russ.). A Russian measure of length equal to 0.6629 mi. or 1.067 km. (Webster)

Vertedero (Sp. Am.). 1. A spring; rivulet; ravine. (Lucas)
2. The overflow of a dam (Halse). A spillway.

Vertical fault. *See* Fault.

Vertical shaft. A shaft sunk at an angle of 90° with the horizon, or directly downward toward the center of the earth. (Weed)

Vertical shift. The vertical component of the shift. *See* Shift, 4. (Lindgren, p. 122)

Vértice (Sp.). Vertex. (Dwight)

Vertiente (Sp.). 1. Watershed. (Dwight)
2. A waterfall. 3. A spring. 4. A waste weir of a dam. 5. An air vent. (Halse)

Vesicle. A small cavity in an aphanitic or glassy igneous rock, formed by the expansion of a bubble of gas or steam during the solidification of the rock. (La Forge)

Vesicular. Characteristic of or characterized by, pertaining to, or containing vesicles. (La Forge)

Vespertine. In geology, the tenth series of the Pennsylvania system of stratigraphy, comprising the Pocono sandstone of the Lower Carboniferous (Standard). Long obsolete.

Vestigio (Mex.). A trace of gold or silver in assaying. (Dwight)

Vestry. 1. (Eng.) The productive part of the vein. *See* Carbona; also Bowse. (Hunt)
2. (Newc.) Refuse. (Raymond)

Vesuvian garnet. An early name for leucite, from Vesuvius, its principal locality. (Chester)

Vesuvianite. A complex calcium-aluminum silicate of uncertain formula. A massive light-green variety is known as californite (U. S. Geol. Surv.). Also called Idocrase.

Vesuvius salt. Same as Aphthitalite. (Standard)

Veszelyite. A greenish-blue hydrous phospho-arsenate of copper and zinc. (Standard)

Veta (Sp.). Strictly a fissure-vein; loosely, any mineral deposit. A main vein. Compare *Vena* and *Filón*. *V. ahogada*, a drowned lode. *V. clavada*, a vertical vein. *V. corrida*, a continuous vein. *V. crucera*, a cross-vein. *V. cruzada*, a dislocated lode. *V. de cajón*, an incline lode. *V. de cuarzo*, a reef. *V. de hoyada*, a lode worked by Indians. *V. de manto*, a horizontal lode. *V. de resbalon*, a vertical lode. *V. de sombre*, floor; horizontal lode. *V. echada*, an inclined vein. *V. en borra*, a vein carrying no ore. *V. en cuña*, a gash vein. *V. filón*, a fissure vein. *V. en frutos*, a vein carrying pay ore. *V. madre*, the main lode; mother lode. *V. ramal*, a branch-vein. *V. rechazada*, dislocated lode. *V. recostada*, an inclined vein. *V. robada*, a spoiled lode. *V. seca*, a dry lode. *V. serpenteada*, a vein of variable strike. *V. socia*, a companion or connecting vein. (Dwight, Halse, Lucas)

Vetilla. 1. (Mex.) A slide. A groove in a slickenside (Dwight) 2. A veinlet. (Lucas)

Vezin's sampler. A mechanical sampling device that automatically selects one twenty-fifth or one sixty-forth of the ore passing through. (Hofman, p. 64)

V-flume. A V-shaped flume, supported by trestlework, and used by miners for bringing down timber and wood from the high mountains, at the same time using the water for mining purposes. Some of these flumes are many miles in length; one on the western slope of the Sierra Nevada mountains, in California, was over 40 miles long. (Crofutt)

Vía (Sp.). 1. A road, a route. 2. An underground road, gallery or shaft. 3. An aerial ropeway; a cableway. 4. *V. vertical*, guides for a skip or cage. (Halse)

Vibracone. A vibrating ore-screen in which the feed is from a saucer-shaped distributer onto a conical surface kept in vibration by a ratchet motion. (Liddell)

Vicinal forms. In crystallography, forms taking the place of the simple fundamental forms to which they approximate very closely in angular position. Such forms are exceptional. (Dana)

Vielle-Montagne furnace. A mechanical roasting furnace similar to the Ross and Welter type. (Ingalls, p. 110)

Viewer (Eng.). A colliery manager or superintendent. (Chance)

Vignite. A magnetic iron ore. (Century)

Vigorite. An explosive resembling dynamite No. 2, and consisting of nitroglycerin with a more or less explosive dope. (Raymond)

Vigo's powder. Mercuric oxide. (Standard)

Vilanquis (Bol.). Ores containing native silver, chloride, sulphate, and oxide of silver. (Halse)

Vinney. Copper ore, with a green efflorescence like verdigris. (Davies)

Vintlite. A quartz-porphyrite occurring in dikes near Unter-Vintl, in the Tyrol. *Compare* Toellite from the same region. (Kemp)

Virgin. Applied to metals occurring elementally, as virgin gold, as distinguished from ore minerals which are chemical compounds (Weed). *See* Native.

Virgin clay. Fresh clay, as distinguished from that which has been fired. (Standard)

Virgin coal. A coal seam or part thereof in which no mining has been carried on.

Virgin field. A mineral field in which there has been no mining.

Virgin steel. A deceptive name given to articles made merely of good cast iron. (Century)

Viridite. A name suggested by Vogelsang and formerly used for the microscopic, green, chloritic scales often seen in thin sections. As their true nature has now been determined, they are generally called chlorite. (Kemp)

Viscosine. A Russian lubricating oil which possesses a specific gravity of 0.925 to 0.935, a flash point of 290° to 310° C., and an Engler viscosity of 5 minutes at 100° C. (Bacon)

Viscosity. The property of liquids that causes them to resist instantaneous change of shape or of the

arrangements of their parts; internal friction; gumminess. (Rickard) A term used in flotation processes.

Viscous. 1. Adhesive or sticky, and having a ropy or glutinous consistency. (Webster)
2. Imperfectly fluid; designating a substance that, like tar or wax, will change its form under the influence of a deforming force, but not instantly, as more perfect fluids appear to do. (Standard)

Visette (Fr.). A slope or incline. (Gresley)

Vista (Sp.). Sight; *mineral á la vista*, ore in sight. (Halse)

Viterio (Sp.). 1. Vitreous. 2. Glassy. (Halse)

Vitreous. Having the luster of broken glass, quartz, calcite. (Dana)

Vitreous copper. Chalcocite. (Power)

Vitreous fusion. Gradual fusion, not having a sharp melting point. (Webster)

Vitreous silver. Argentite. (Standard)

Vitrics. 1. Fused siliceous compounds, such as glasses and enamels, as distinguished from ceramics, or fused aluminous compounds. 2. The art or history of glass-production. (Standard)

Vitrifaction. *See* Vitrification.

Vitrifacture. The manufacture of vitreous or vitrified wares, as glass. (Standard)

Vitrifiable color. A metallic oxide mixed with glaze: used in ceramic color-decoration. (Standard)

Vitrification. Act, art, or process, of vitrifying; state of being vitrified; also a vitrified body. (Webster)

Vitrify. To convert into, or cause to resemble, glass or a glassy substance, by heat and fusion. (Webster)

Vitriol. 1. A sulphate of any of the various metals, as copper (blue vitriol), iron (green vitriol), zinc (white vitriol), etc. 2. Oil of vitriol, as sulphuric acid. 3. To dip in dilute sulphuric acid; to pickle. (Webster)

Vitriolate. To make into sulphuric acid or a sulphate. To subject to the action of, or impregnate with vitriol. (Webster)

Vitriolo (Sp.). Vitriol; *V. azul*, blue vitriol; *V. blanco*, white vitriol; *V. verde*, green vitriol; copperas. (Halse)

Vitriol ocher. Same as Glockerite. (Standard)

Vitriol of Mars. Same as Green vitriol. (Standard)

Vitrites. A word used by M. E. Wadsworth to include vitrifiable material, as glass, etc. (Power)

Vitro. A prefix meaning glassy and used before many rock names, as vitrophyre, in order to indicate a glassy texture. (Kemp)

Vitrophyre. Vogelsang's name for quartz-porphyries and porphyries with glassy groundmass (Kemp). *See* Felsophyre and Granophyre.

Vitrophyric. Porphyritic, with a glassy or vitreous base: said of the fabric of some igneous rocks. (La Forge)

Vivianite. A hydrous, ferrous phosphate, $Fe_3(PO_4)_2.8H_2O$, colorless when unaltered, or blue to green, growing darker on exposure (Webster). Called also Blue iron earth; Blue ocher.

"V-method" of roasting. The introduction of a supplementary roast heap between each two regular heaps, so that, if left untouched, there would be a continuous and unbroken roast heap the entire length of the roast yard. (Peters, p. 136)

Vogesite. A lamprophyric variety of syenite prophyry containing phenocrysts of hornblende, augite, or diopside. (La Forge)

Vogle. In mining, same as Vug. (Standard)

Voglianite. A soft, green, basic uranium-sulphate, found in nodules or as earthy coatings. (Standard)

Voglite. A hydrous carbonate of uranium, calcium, and copper. Color emerald-green to bright grass-green. (Dana)

Voladora. 1. (Peru) An upper millstone. 2. One of the grinding stones or mullers of an *arrastre*. (Dwight) 3. (Sp.) A fly wheel. (Halse)

Voladura (Sp.). A large blast. (Halse)

Volandera (Sp.). 1. The runner of a Chilian or edge-mill. 2. An upper mill stone. (Halse)

Volante (Sp.). A fly wheel; *V. de piedra*, a Chilian mill. (Halse)

Volar (Sp.). To blast rocks. Generally used for large blasts. (Halse)

Volatile. Easily wasting away by evaporation; readily vaporizable (Webster), *e. g.*, those fractions of bituminous materials which will evaporate at climatic temperatures. (Bacon)

Volatile combustible. That part of the combustible matter of coal which is driven off when the coal is heated in a closed vessel, chiefly compounds of hydrogen and carbon. (Steel)

Volborthite. A hydrous vanadate of copper, barium, and calcium. (U. S. Geol. Surv.)

Volcán. 1. (Sp.) Volcano. (Dwight) 2. (Colom.) A land slide. (Halse)

Volcanello. A small volcano, especially when connected with an active one. (Standard)

Volcanic. Characteristic of, pertaining to, situated in or upon, formed in, or derived from volcanoes. (La Forge)

Volcanic ash; Volcanic tuff. *See* Ash, *also* Tuff.

Volcanic bomb. *See* Bomb, 1.

Volcanic breccia. *See* Breccia.

Volcanic cone. A cone formed by volcanic discharges. (Standard)

Volcanic eruption. The breaking forth of lava, pumice, dust, etc., from the mouth of a volcano. (Standard)

Volcanic focus. The supposed seat or center of activity in a volcanic region or beneath a volcano. (Century)

Volcanic glass. A volcanic igneous rock of vitreous or glassy texture, such as obsidian, pitchstone, and tachylyte. (La Forge)

Volcanic mud. Mud formed of fine-grained tuff, either mixed with eruptive water and flowing from the volcano as mud, or erupted as dust and later mixed with surface water, generally rain falling on the slopes of the volcano. (La Forge)

Volcanic neck. The filled-up vent or pipe of a former volcano. (Standard)

Volcanic rock. Any rock of volcanic origin: volcanic igneous rocks are those erupted as molten masses, forming lava flows, dikes in the crater walls, volcanic plugs, etc.; volcanic sedimentary rocks are the fragmental materials ejected in explosive eruptions, forming tuff, agglomerate, etc. (La Forge)

Volcanic sand. Finely divided fragments of lava produced by volcanic explosions. (Standard)

Volcanic sink. A volcanic basin of engulfment, or down faulting, with a floor area many times greater than the cross section of the associated vent. (Daly, p. 152)

Volcanic tuff. *See* Tuff.

Volcanism. Volcanic power or activity. As used in physical geography and geology, the term ordinarily includes all natural processes resulting in forming volcanoes, lava fields, laccoliths, stocks, dikes, etc. (Webster)

Volcanist. One versed in the study of volcanic phenomena; also a Plutonist. (Webster)

Volcanite. A name proposed by W. H. Hobbs, for an anorthoclase-augite lava with the chemical composition of dacite. The name was suggested by the original occurrence on the island of Volcano, one of the Lipari group, where the rock is found as cellular bombs. (Kemp)

Volcanity. The state of being volcanic or of volcanic origin. (Century)

Volcanize. To subject to, or to cause to undergo and be affected by, volcanic heat. (Webster)

Volcano. A vent in the earth's crust communicating with a magmatic reservoir and commonly in the summit of a conical mountain built up of erupted material, from which are emitted molten rock or lava, fragmental solid material, hot water and mud, steam, and various gases (La Forge). A volcano is called *active* while it is in eruption, *dormant* during a long cessation of activity, and *extinct* after eruptions have altogether ceased (Webster). *See* Free-flowing volcano; also Explosive volcano.

Volcanology. The science treating of volcanic phenomena. (Webster)

Volgian. A division of the Jurassic rocks of Northern Russia. (Century)

Volhynite. A porphyrite containing plagioclase, hornblende, and biotite phenocrysts in a holocrystalline groundmass of feldspar and chlorite. The name was given by Ossovsky, and it is based on the original occurrence in Volhynia. (Kemp)

Volley. In mining, the act of exploding blasts in sections (Standard). A round of holes fired at any one time.

Volt. The unit of electro-motive force; *i. e.*, a force which steadily applied to a conductor whose resistance is one ohm will produce a current of one ampere. (Webster)

Voltage. Electrical potential, or potential difference expressed in volts, as the voltage of a current. (Webster)

Volta's list. A list or series of metals such that any one will be at a higher electrical potential when put in contact with any of those which follow, and at a lower potential if in contact with any metal before it in the series. The following is such a list: zinc, lead, tin, iron, copper, silver, and gold. (Standard)

Voltear la torta (Sp.). Spading or turning the *torta.* (Egleston)

Voltzite. An oxysulphide of zinc, Zn_5S_4O, occurring in implanted spherical globules of a yellowish or reddish color. (Webster)

Volumetric analysis. The analysis of a compound by determining the quantity of a standard solution required to satisfy a reaction in a known quantity of the compound. (Standard)

Volumetric efficiency. Volumetric efficiency is the ratio of the capacity to the displacement of the air compressor. (A. I. M. E., Bull. 140, p. lvii)

Volumetric grains (Eng.). Grains of a definite size or diameter, but of a variable density which fall through water at different rates of velocity. (Hunt)

Vómito (Colom.). An outcrop. (Halse)

Vooga hole. Same as Vug. (Standard)

Vorhauer (Pr.). An experienced miner, or the "Old man of the stall." He corresponds to the first man or butty collier of English mines. (Gresley)

Vough (Corn.). Same as Vug. (Standard)

Vou-hole; Vooga (Corn.). A natural cavity, hole, or chasm, in the earth or a mine. Called Shack in Derbyshire (Pryce). A vug.

Voun (Scot.). *See* Veal.

Voussoir (Fr.). Any of the tapering or wedge-shaped pieces of which an arch or vault is composed. The middle one is usually specifically called the Keystone. (Webster)

Vuelta. 1. (Mex.). In refining silver, the moment when impurities have been removed (Dwight)
2. The brightening of silver in cupellation (Halse). *See* Blick.

Vug; Vugg; Vugh. A cavity in the rock, usually lined with a crystalline incrustation. *See* Geode (Raymond). Sometimes written Voog; Vough.

Vuggy lode. A lode or vein in which vugs or drusy cavities are of frequent occurrence. (Power)

Vuggy rock (Eng.). A stratum of cellular structure, or one containing many cavities. (Gresley)

Vulcan. 1. The Roman god of the fiery element, especially in his fearful aspects, whose cult, according to tradition, was brought to Rome by the Sabine king Titus Tatius. Later he was identified with the Greek Hephæstus and was hence represented as consort of Venus and god of metal working. (Webster)
2. A volcano. (Century)

Vulcanism. Same as Volcanism.

Vulcanist. In geology, one who holds or taught the Plutonic theory of the formation of rocks. *See* Plutonic. *Compare* Neptunist. Usage obsolete.

Vulcanite. A hard rubber produced by vulcanizing with sulphur. *See* Ebonite. (Webster)

Vulcanize. To treat india-rubber with some form of sulphur to effect certain changes in its properties, and yield a soft or hard product. (Century)

Vulcan oil. A petroleum product havnig a specific gravity of 0.910 to 0.960 at 15° C. (Bacon)

Vulcan powder. A dynamite composed of nitroglycerin (30 parts), sodium nitrate (52.5), charcoal (10.5), and sulphur (7). Used in mining and blasting. (Webster)

Vulpinite. A scaly, granular variety of anhydrite; it is cut and polished for ornamental purposes. (Dana)

Vulsinite. A variety of latite containing phenocrysts of sanidine, andesine, augite, and biotite in a groundmass of trachytic habit (La Forge). The name is derived from the Vul-

sinii, an ancient Etruscan tribe inhabiting the region where the type specimens were obtained. *Compare* Latite and Trachydolerite. (Kemp)

V-vat. 1. A funnel box; also, having a groove or grooves of a triangular section. (Webster)
2. A spitzkasten. (Standard)

W.

Wacke. Residual sand and clay formed by the decay of diabase, basalt, basaltic tuff, and similar rocks. (La Forge)

Wad. 1. Bog manganese. An impure mixture of manganese and other oxides. It contains 10 to 20 per cent of water, and is generally soft, soiling the hand. A variety known as asbolite carries as much as 32 per cent of cobalt (U. S. Geol. Surv.). Also called Black ocher; Earthy manganese. Lampadite.
2. In ceramics, a piece of clay used for various purposes, as a strip of moist clay laid around the rim of a seggar to form a bed for a superimposed seggar in the kiln. 3. (Eng.) Black lead; graphite. (Webster)

Wad coil (Eng.). A tool for extracting a pebble or broken tool from the bottom of a bore-hole. It consists of two spiral steel blades arranged something like a corkscrew. *See* Spiral worm (Gresley). Also called Wad-hook.

Wad-hook. *See* Wad Coil; *also* Spiral worm.

Waff; Waft (Scot.). To fan out as fire-damp from the working rooms (Barrowman). *See* Brush; *also* Dadding.

Waffle ingot. An ingot of aluminum about 3 inches square and ½ inch thick. (Webster)

Wage. In ceramics, to knead, work, or temper, as clay. (Webster)

Wageman (Leic.). A collier who is paid by the day for performing a fixed amount of work (Gresley). The American equivalent is company man; also time worker as distinguished from pieceworker. A wage earner.

Waging board. In ceramics, a board or table upon which potters' clay is kneaded. (Standard)

Wagnerite. A vitreous, yellow, grayish, flesh-red or greenish, translucent, crystalline fluophosphate of magnesium, $Mg_3P_2O_8.MgF_2$. (Dana)

Wagon. 1. A mine car (Chance). The British spelling is waggon and in Great Britain it is synonymous with Box, Corf, Hutch, Skip, Tram, and Tub. (Gresley)
2. (Scot.) A measure of weight equal to 24 hundredweight. Coal sold for delivery in carts is usually sold by the wagon of 24 hundredweight. (Barrowman)

Wagon breast. A breast in which the mine cars are taken up to the working face (Chance)

Wagon drill. A reciprocating drill operated by steam or compressed air. It is similar to a tripod drill, but is mounted on a truck and employs long steel which does not require frequent change. (Bowles)

Wagoner (No. Staff.). A man or boy who with a horse hauls mine cars underground. (Gresley)

Wagon hole (Eng.). The place where the tramway ends in a working place.

Wagon mine. Same as Snowbird mine.

Wagon way (No. of Eng.). An underground engine-plane or horse-road.

Wailer (No. of Eng.). A boy who picks out the rock and other rubbish that falls through a screen into the mine car with the coal (Gresley). A variation of Waler.

Waiters-on (Eng.). Men employed at the top of a shaft to run cars on and off the cage (Gresley). *See* Pithead man.

Walchowite. A yellow, resinous, oxygenated, hydrocarbon that occurs in brown coal at Walchow, in Moravia; it has a specific gravity of 1.0 to 1.069, fuses to a yellow oil at 250° C., and forms a dark brown solution in sulphuric acid (Bacon). Also called Retinite.

Wale (Newc.). To clean coal by picking out the refuse by hand. The boys who do this are called Walers, or Wailers.

Waler. *See* Wale; Wailer.

Waling (Eng.). Cleaning coals by picking out refuse. (Bainbridge)

Walker shutter (Aust.). A shutter having a V-shaped cut in it, provided for large ventilation fans of Guibal type, which by cutting off the discharge of air gradually, reduces the vibration. (Power)

Walking. The movement forward or backward of a dredge by first winding up on one side and then the other, swinging the boat from side to side and thereby advancing with a slight offsetting to the side. (Weatherbe)

Walking beam. An oscillating beam or lever for transmitting power, as in a beam engine, one form of an oil derrick. (Webster)

Walking crane. A light crane traveling on an overhead channel iron and a single rail vertically beneath this in the floor. (Webster)

Walking delegate. An official appointed by a trade union to ascertain whether its rules are observed by its members and by their employers, and to represent the unions in dealing with the employers. (Webster)

Walk out (U. S.). A labor strike. (Webster)

Wall. 1. The side of a level or drift.
2. The country rock bounding a vein lateraly (Raymond). The side of a lode. The overhanging side is known as the *hanging wall*, and the lower lying one as the *footwall*.
3. The face of a long-wall working or stall, commonly called Coal wall.
4. (No. of Eng.) A rib of solid coal between two bords. (Gresley)

Wall accretions. Material adhering to the inner walls of a blast furnace between the water jackets and the feed door. (Hofman, p. 376)

Wall bars (Eng.). Prop wood usually cut flat to fix against the roof, close up to the working face, where the roof is liable to break along the line of face. (Gresley)

Wall coal (Scot.). Breast coal; the middle division of three in a seam, the other two being termed top coal and ground coal. (Barrowman)

Wall cutting (Scot.). Side cutting or shearing the solid coal in opening working places; trimming the sides of a shaft. (Barrowman)

Wallers. Laborers who build walls to support back filling. (Sanders, p. 89)

Wall face (Scot.). The face of the coal wall; the working face. (Barrowman)

Walling. 1. The brick or stone lining of shafts. 2. (Derb.) Stacking or setting up ironstone, etc., in heaps, preparatory to being measured or weighed. (Gresley)

Walling crib (Eng.). Oak cribs or curbs upon which shaft walls are built. (Gresley)

Walling stage. A movable wooden scaffold suspended from a crab on the surface, upon which the workmen stand when walling or lining a shaft. (C. and M. M. P.)

Wallow (Mid.). A windlass; a stowse. (Gresley)

Wall plates. 1. (Corn.) The two sidepieces of a timber frame in a shaft, parallel to the strike of the lode when the shaft is sunk on the lode (Raymond). When not sunk on the lode, the two longest horizontal pieces of timber in a set used in a rectangular shaft.
2. (Scot.) Vertical pieces of wood supporting the ends of the buntons in a wood-lined shaft. (Barrowman)

Wall rock. The rock forming the walls of a vein or lode; the country rock. (Century)

Wall saltpeter. Calcium nitrate; so called because it disintegrates mortar. (Webster)

Wallsend (Eng.). A superior coal for household purposes: originally from Wallsend, on the Tyne, but now from any part of a large district in and near Newcastle. (Standard)

Walls of a vein. *See* Wall, 1; *also* Wall rock.

Wall white. A white scum that appears on bricks after they are set in the wall. (Ries)

Wandering coal (Scot.). A coal seam that exists only over a small area; an irregular seam of coal. (Barrowman)

Want. 1. (Scot.) A clean rent or fissure in strata unaccompanied by dislocation. (Gresley)
2. (Eng.) A portion of a coal seam in which the coal has been washed away and its place filled with clay or sand; a nip (Standard). *Compare* Pinch, 2 and 3.

Wapping (Leic.). A roughly-made rope or band of hemp or spun yarn. (Gresley)

Warden (Aust.). The overseer of workers on a gold field. (Standard)

Wargeare (Derb.). A general term for all tools, ropes, timber, and other appliances necessary to carry on the work of a mine. (Hooson)

Wargues (Fr.). A horse-gin. (Gresley)

Wark batch (Som.). A spoil bank. (Gresley)

Warner (Eng.). An apparatus consisting of a variety of delicately constructed machines actuated by chemical, physical, electrical, and mechanical appliances, for indicating the presence of small quantities of fire damp, heat, etc., in mines. (Gresley, 1883)

Warning. 1. (Scot.) Notice, given or received, of a workman leaving his employment. (Barrowman)
2. To put on guard; to give notice, information, or intimation, beforehand of approaching or probable danger (Webster). As to warn workmen of the dangers usually encountered in a mine.

Warning lamp (Eng.). A safety lamp fitted with certain delicate apparatus for indicating very small proportions of fire damp in the atmosphere of a mine. (Gresley, 1883)

Warning signals. Signals given to men in a mine to notify them that some danger exists as fire, etc., by blinking lights, sounding gongs or bells, or by shutting off the compressed air lines.

Warp. 1. (York.) Blue-brown, finely laminated, tough clay, containing pebbles. (Gresley)
2. The deposit of muddy waters artificially introduced into low lands. (Comstock)

Warped (Scot.). Irregularly bedded, or plicated. (Barrowman)

Warrant (Lanc.). Synonymous with Clunch; Pounson, etc. (Gresley). *Compare* Warren.

Warren; Warren earth (Lanc.). Bind; Clunch; etc. (Gresley). *Compare* Warrant.

Warwickshire method. A method of mining contiguous seams. *See* Bord-and-pillar method.

Wash. 1. A Western miner's term for any loose, surface deposits of sand, gravel, bowlders, etc. (Kemp) 2. Auriferous gravel. 3. Coarse alluvium; an alluvial cone. 4. The dry bed of an intermittent stream, sometimes at the bottom of a cañon, as the Amargosa *wash*. Also called Dry wash. 5. To subject, as earth, gravel, or crushed ore, to the action of water to separate the valuable material from the worthless or less valuable; as to wash gold. 6. To cover with a thin coat of metal, as steel washed with silver. 7. To dephosphorize molten pig iron by adding substances containing iron or manganese oxide. 8. To pass a gas through or over a liquid for the purpose of purifying it. (Webster) 9. In founding, to coat, as a core or mold, with an emulsion, as of graphite, in order to improve the casting. (Standard)

Wash bottle. *See* Washing bottle.

Wash dirt. Gold-bearing earth worth washing (Roy. Com.). Also called Wash stuff; Washing stuff; Wash gravel.

Washer. 1. A machine for washing coal or ore, as a log washer, rocker, jig. 2. An apparatus in which gases are washed; a scrubber. (Webster)

Washery. A place at which ore or coal is freed from its impurities by washing (Webster). *See also* Washing apparatus.

Wash fault (Eng.). A portion of a seam of coal replaced by shale or sandstone (Gresley). *Compare* Want, 2.

Wash gravel. Gravel washed to extract gold (Webster). *Compare* Wash dirt.

Wash hole (Eng.). A place for refuse. (Bainbridge)

Wash house. A building on the surface at a mine where the men can wash before going to their homes. A change house. A dry house.

Washing. 1. Gold dust procured by washing; also a place where this is done; a washery. 2. In ceramics, the covering of a piece with an infusible powder which prevents it from sticking to its supports while receiving the glaze. (Webster)
3. In metallurgy, that which is retained after being washed; as, a *washing* of ore. 4. A thin coating of metal. (Standard)

Washing apparatus; Washery. 1. Machinery and appliances erected on the surface at a colliery, generally in connection with coke ovens, for extracting, by washing with water, the impurities mixed with the coal dust or small slack. 2. Machinery for removing impurities from small sizes of coal, or ore. (C. and M. M. P.)

Washing bottle. 1. A bottle or flask fitted with glass tubes passing through the cork, so that on blowing into one of the tubes a stream of water issuing from the other may be directed upon anything to be washed or rinsed. 2. A bottle for use in washing gases by passing them through liquid contained in it. (Webster)

Washing hutch. *See* Hutch, 2.

Washing machine (Scot.). A machine for separating impurities from small coal by means of water. (Barrowman)

Washing-off; Washing-up (U. S. and Aust.). The periodical final cleaning out of all the gutters and appliances used in alluvial and lode gold mining (Davies). Synonymous with Clean-up.

Washing stuff. Any earthy deposit containing gold enough to pay for washing it. *See* Wash dirt. (Webster)

Washing trommel. *See* Trommel.

Washita. A rather coarse-grained novaculite, especially suitable for sharpening carpenters' or general woodworkers' tools. (Pike)

Washoe canary. A miner's slang term for a donkey (Standard). A burro.

Washoe process. The process of treating silver ores by grinding in pans or tubs with the addition of mercury, and sometimes of chemicals such as blue vitriol and salt (Webster). Named from the Washoe district, Nevada, where it was first used.

Wash-out (Aust.). The erosion of part of a seam by aqueous action (Power). *See* Want, 2.

Wash pan. A pan for washing pay gravel in placer-mining. (Standard)

Wash place. A place where the ores are washed and separated from the waste; usually applied to places where the hand jigs are used. (C. and M. M. P.) *See* Washery.

Wash pot. In tin-plate manufacturing, a pot containing melted tin into which the plates are dipped to be coated. (Webster)

Wash stuff. *See* Wash, 2, and Washing stuff.

Wash water. *See* Water wash.

Wasite. In mineralogy, an altered variety of allanite. (Standard)

Waste. 1. That which has no real value, as barren rock in a mine, or the refuse from ore dressing and smelting plants. Gob; goaf; old workings; also the fine coal made in mining and preparing coal for market; culm; coal dirt; also used to signify both the mine waste (or coal left in the mine in pillars, etc.) and the breaker waste.
2. (Eng.) A more or less empty space between two packs. *See* Goaf.
3. (No. of Eng.) A return airway. (Gresley)
4. Material derived by mechanical and chemical erosion from the land, carried by streams to the sea. 5. In stone cutting, to reduce roughly to a flat surface by chipping. (Webster)
6. Broken or spoiled castings for remelting. (Standard)

Waste coal (Eng.). Coal obtained as a by-product from mine waste. (Gresley)

Wasteman (Mid.). One who looks after and keeps clean the airways of a mine, and keeps the clay walls (brattices) in proper condition. (Gresley)

Waster. 1. A spoiled, imperfect, or rejected casting, molding, piece of pottery, etc. 2. Tin plate below the standard weight and quality. (Standard)

Waste room (Scot.). An abandoned working place. (Barrowman)

Waster waste. The lowest grade of waste tin-plate. (Standard)

Wastes (Derb.). Vacant places left in the gobbing, on each side of which the rubbish is packed up for the better support of the roof. (Min. Jour.)

Waste water. Water from old mine workings (Barrowman). Also water from any metallurgical process, or the overflow from a storage reservoir.

Wasteway. A conduit for waste water. (Webster)

Wasteweir. *See* Weir, 2.

Wastings (Scot.). Mine workings. (Barrowman)

Wastrel (Eng.). A tract of waste land; or any waste material. (Raymond)

Watch. In ceramics, a trial piece of clay placed in the kiln, to be withdrawn and examined from time to time, as an index of the condition of the ware being fired. (Webster)

Watchers (Leic.). Experienced colliers who go into the mine and examine the whole of the workings, with a deputy, every Sunday. (Gresley)

Water. The transparency or luster of a precious stone or pearl; hence, the aggregate of qualities that make it valuable (Standard); as a diamond of the first water.

Water balance. 1. (Scot.) An arrangement by which a descending tank of water raises mineral in a shaft by a rope passed over a pulley. Sometimes used where water is abundant and can be run off at the pit bottom by means of an adit. (Barrowman)

2. An obsolete water-raising apparatus consisting of a swinging frame carrying a double series of troughs ascending in zigzag lines, and so adjusted to each other that, as the frame rocks in either direction, water may be passed to a higher level. (Standard)

Water baler (Aust.). A man who bales water out of dip workings in places where it is not convenient to put in a pump. (Power)

Water barrel; Water tank. A barrel or box, with a self-acting valve at the bottom, used for hoisting water in lieu of a pump. (Raymond)

Water bed. A bed of coarse gravel or pebbles occurring in the lower part of the upper till in the Upper Mississippi valley. (Standard)

Water blast. 1. (Eng.) The sudden escape of air pent up in rise workings under considerable pressure from a head of water that has accumulated in a connecting shaft. (C. and M. M. P.)

2. (Scot.) The discharge of water down a shaft to produce or quicken ventilation (Barrowman). *See also* Trombe.

Water block. A hollow box or block of iron, through which water is circulated, to protect part of a furnace wall. (Webster)

Water boss (Aust.). The owner or holder of water or water rights, who sells the same for mining purposes. (Davies)

Water box. 1. A square, open, wooden tank-car used for removing small amounts of water from low places in a mine. Also the tank-car used for sprinkling the roadways to settle the dust. (Steel)

2. A water-case attached to the outside of a furnace, to protect the iron from the effects of fire. (Standard) Also called Water block.

Water cartridge. A waterproof cartridge surrounded by an outer case. The space between being filled with water, which is employed to destroy the flame produced when the shot is fired, thereby lessens the chance of an explosion should gas be present in the place. (Steel)

Water cement. Same as Hydraulic cement. (Standard)

Water core. A hollow core through which water circulates in a mold used for cooling the interior of a casting more rapidly than the outside while the metal is solidifying, as in casting a cannon. (Webster)

Water course. A natural or artificial channel for passage of water as a river, canal, flume, or drainage tunnel.

Water curb (Eng.). *See* Garland.

Watered (Eng.). Containing much water—full of springs or feeders: *e. g.* heavily watered mines, heavily watered measures, etc. (Gresley)

Water engine (Scot.). An engine used exclusively for pumping water. (Barrowman)

Water flush. A system of well boring, in which percussive drills are used in connection with water forced down to the bottom of the hole through the drill rods. This water jet makes the tools cut better, and washes the detritus up out of the hole. (Nat. Tube Co.)

Water gap. A pass in a mountain ridge through which a stream runs. (Webster)

Water gas. A gas made by forcing steam over incandescent carbon (coke) whereby there results a mixture of hydrogen and carbon monoxide. It is sometimes used as a fuel, but usually is carburetted with illuminating constituents prepared from oil and used as illuminating gas. (Webster)

Water-gas tars. Tars produced by cracking oil vapors in the manufacture of carbureted water gas. (Bacon)

Water gage. 1. An instrument to measure the ventilating pressure; the term is also used to denote the ventilating pressure in inches. (Chance)

2. An instrument to measure or find the depth or quantity of water, or to indicate the height of its surface, as in a steam boiler. (Webster)

Water gin (Scot.). A gin actuated by a water wheel. (Barrowman)

Water glass. 1. A glassy or stony substance consisting of silicates of sodium or potassium, or both, soluble in water forming a viscous liquid. 2. A water gage for a steam boiler. (Webster)

Water grade. 1. The inclination of an entry that is just sufficient to drain off the water. 2. A grade determined by keeping the working place nearly parallel to the edge of the pool of water standing upon its floor. Water grade is sometimes incorrectly called Water level. (Steel)

Water hammer. 1. The hammering noise caused by the intermittent escape of gas through water in mines. (Gresley)
2. The concussion of moving water against the sides of a pipe on a sudden stoppage of flow, as made by water in a steam pipe. (Webster)

Water inch. The discharge from a circular orifice 1 inch in diameter with a head of one line (one-twelfth inch) above the top edge commonly estimated at fourteen pints per minute; an old unit of hydraulic measure. (Webster)

Water jackets. Cast- or wrought-iron sections of a furnace so constructed as to allow free circulation of water for keeping the furnace cool. Also called Water block; Water box.

Water kibble. A large iron bucket with a valve in the bottom for self-filling; sometimes used in hoisting the water from a mine. (Standard) *See also* Water barrel.

Water leaf (Scot.). *See* Top ply.

Water level. 1. The level at which, by natural or artificial drainage, water is removed from a mine or mineral deposit. 2. A drift at the water level (Raymond). *See* Water grade.

Water Leyner. A type of rock drill in which water is fed into the drill hole through the hollow drill steel, to remove the drill cuttings, and at the same time allay the dust. Also known as Leyner-Ingersoll drill.

Water lime. 1. Hydraulic lime. 2. A Silurian limestone formation overlying the Salina proper of New York. Hydraulic lime is made from it. (Webster)

Water load (So. Wales). The head, or pressure per square inch, of a column of water in pumps, etc. (Gresley)

Water lodge (Eng.). A lodge; a sump. (Gresley)

Water machine (Scot.). A pump or other appliance actuated by a water wheel for raising water. (Barrowman)

Watermen (Corn.). Men employed about water underground; especially those who drew water at the rag-and-chain pump. (Pryce)

Water of crystallization. The water that combines with salts when they crystallize. It is a definite quantity, and may be accepted as a molecular constituent of the crystalline compound (Standard). It is yielded by the crystals containing it upon heating.

Water of imbibition. 1. The proportionate amount of water that a rock can contain above the line of water level or saturation. Called also Quarry water. 2. Water of saturation. (Standard)

Water opal. Same as Hyalite. (Standard)

Water packer. A device to cut off water from the lower levels of an oil well, or to separate two distinct flows of oil from different strata. (Nat. Tube Co.)

Water parting. The boundary between two river basins; a watershed. (Century)

Water plane. In geology, the upper surface of a bed of water, as of ground-water. (Standard)

Water pocket (local, U. S.). A bowl, in rock structure, that has been formed by the action of falling water. (Standard)

Water power. 1. The power of water derived from its gravity or its momentum as applied or applicable to the driving of machinery. 2. A descent or fall in a stream from which motive power may be obtained; especially, in law, the fall in a stream in its natural state, as it passes through a person's land or along the boundaries of it. (Standard)

Water privilege. 1. The right to the use of the water of a certain stream. 2. The right to the possession and use of a fall of water for mechanical purposes. (Standard). (U. S. Min. Stat., pp. 609–612)

Water-quenched. Cooled with water, as steel in tempering. (Standard)

Water right. The right to use water for mining, agricultural, or other purposes. (U. S. Min. Stat., pp. 609–612; 615; 946). *See also* Water privilege.

Water ring (Aust.). A trough cut into the wall of a shaft in which water collects, and is led down pipes to a pumping station. (Power)

Water-rolled. In geology, more or less rounded and smoothed by the mechanical action of moving water, in the waves on a beach, or in the current of a stream. (Standard)

Water sapphire. *See* Cordierite, 1.

Water seal. A seal formed by water to prevent the passage of gas. (Webster)

Watershed. The height-of-land or divide from which the natural drainage of a district flows in opposite directions. (Roy. Com.)

Water sink. A pot hole. (Standard)

Water slip. A fault or joint from which water flows. (Steel)

Water smoke. To fire (a kiln) slowly in order to dry out the moisture from the bricks, before burning. (Standard)

Water-soluble oils. Oils having the property of forming permanent emulsions or almost clear solutions with water. (Bacon)

Water stone. A stone whose cutting crystals break away rapidly from its bond. The use of water forms a gritty paste which acts in much the same way as oil when used on an oilstone. The Queer Creek and Hindostan stones are good examples of water stone. (Pike)

Water struck. In brickmaking, made in a mold without pressure: said of slop bricks. (Standard)

Water surface. In oil wells, the level or inclined plane between the oil, or gas, and the edge water upon which the oil or gas rests. Not to be confused with ground-water level or table. (U. S. Geol. Surv. Bull. 258, p. 48)

Water table. 1. (Aust.) An elevated drain placed across a tram track to carry off surface water. 2. The upper limit of the portion of the ground wholly saturated with water. This may be very near the surface or many feet below it. (Webster)

Water tender. A boiler-house employee attending to feed water of boilers, and usually also to blow-off valves. (Willcox)

Water tower. 1. A stand-pipe or its equivalent giving a head to a system of water distribution. 2. A tower in which a falling spray of water is used to wash gas, etc. (Standard)

Water tuyère. A water jacketed tuyère. (Webster)

Water vein. Any one of the small underground streams of water often flowing through beds otherwise barren of water. (Standard)

Water wash. The use of water to remove the soluble constituents of a mill product before further treatment. (Clennell, p. 219)

Water way (Scot.). The area in a clack or bucket for the passage of water. (Barrowman)

Water wheel. A wheel so arranged with floats, buckets, etc., that it may be turned by flowing water: used to drive machinery, raise water, etc. The *overshot* and *undershot* water-wheel, the *breast-wheel*, and *tub-wheel* are now largely discarded in favor of the *turbine*. (Standard)

Water yardage (Ark.). Extra payment to miners who work in a wet place, either by the yard of progress or the ton of coal mined. (Steel)

Watt. An electrical unit of power or activity equal to work done at the rate of one joule a second or at the rate of work represented by a current of one ampere under a pressure of one volt. A volt-ampere. A horsepower is equal to 746 watts. (Webster)

Waugh drill. *See* Rock drill.

Wavellite. Hydrous aluminum phosphate, $Al_6(OH)_6.(PO_4)_4+9H_2O$. Fluorine is present in some specimens up to 2 per cent. (U. S. Geol. Surv.)

Wavy extinction. Irregular extinction of a mineral under the microscope due to bending or distortion of the crystal. (Luquer, p. 16)

Wavy vein. A vein that alternately enlarges or pinches at short intervals. (Power)

Wax. 1. An unctuous, fusible, and more or less viscous to solid substance, having a characteristic "waxy" luster, and insoluble in water, but more or less soluble in carbon disulphide, benzol, etc. Waxes are extremely susceptible to changes in temperature. (Bacon) 2. (Leic.) Soft or puddled clay used for dams or stoppings, in the mine. (Gresley)

Wax coal. *See* Earthy brown coal.

Wax dam (Leic.). A wall or dam of clay (Gresley). Called also a Wax wall.

Waxing (Leic.). The operation of plastering a waste stack with clay. *See* Stack out. (Gresley)

Wax distillate. Neutral oil distillate before the separation of paraffin wax. (Bacon)

Wax opal. An early name for yellow opal with a waxy luster. (Chester)

Wax tailings. A residual product, containing chrysene, picene, and other compounds, formed by destructive distillation of petroleum. It is of dark-green color but darkens on exposure to light; is asphaltic in nature and varies in melting point according to the care with which it is separated and later refined. It is used for weather and waterproofing compounds, in some cases as a flux in street paving mixtures, and as a filler in very cheap axle grease. (Bacon)

Wax wall (Leic.). A clay wall about ten inches in thickness built up from floor to roof, alongside a gob road a few feet within the goaf, to keep back or prevent fire-stinks, etc. (Gresley). *Compare* Wax dam.

Way. 1. (No. of Eng.) Any underground passage or heading driven more or less on the level of the coal, along which the produce of the mine is conveyed. A gate, road, or wagonway. 2. The rails, sleepers, etc., upon which cars, tubs, or corves run. (Gresley)

Wayboard (Eng.). A thin layer or band that separates or defines the boundaries of thicker strata; as thick beds of limestone separated by "wayboards" of slaty shale; of sandstone separated by "wayboards" of clay (Page). Also written Weighboard.

Way dirt (Leic.). The slack, dust, and lumps of coal which fall from the cars upon the roads from the working places to the shafts. It is collected during the night and sent to the bank and used under the boilers. (Gresley)

Way end (Scot.). The inner extremity of the wooden railways formerly used in mines (Barrowman). The end of an entry or roadway.

Waygate. The tail-race of a mill. (Century)

Way head (Mid.). The end of a way or gate next to the face. (Gresley)

Way leave (Eng.). 1. A rent or royalty paid by the owner or lessee of a mine for conveying minerals belonging to one person through the property of another person. 2. (No. of Eng.) The right of making and maintaining colliery railways through private property which may intervene between collieries and coal docks (Gresley). *See* Easement.

Way shaft. A winze. (Standard)

Weak veins (No. of Eng.). Veins so called when the strata on either side are but slightly displaced. (Power)

Weald clay (Eng.). Thick blue clays, having in the upper part septaria of argillaceous ironstone, and in the lower part beds of the shelly freshwater limestone known as "Sussex, Petworth, or Bethersden marble." (Page)

Wealden. In geology, a thick fluviatile delta of the Lower Cretaceous in England. (Standard)

Weather. To undergo or endure the action of the atmosphere; to suffer meteorological influences; sometimes, to wear away (Webster). In geology, specifically, to discolor, crumble, or otherwise change by means of atmospheric action. Said of rocks.

Weather door. A door in a mine level to regulate the ventilating current (Raymond). A trap door.

Weathering. The group of processes, such as the chemical action of air and rain water and of plants and bacteria and the mechanical action of changes of temperature, whereby rocks on exposure to the weather change in character, decay, and finally crumble into soil. (Ransome)

Weather stain. Discoloration from exposure to the atmosphere (Standard.) Said of rocks and minerals.

Web (Mid.). The face or wall of a long-wall stall in course of being holed and broken down for removal. (Gresley)

Websterite. 1. A name proposed by G. H. Williams for the pyroxenites near Webster, N. C., that consist of diopside and bronzite, with the latter porphyritically developed. The name Websterite had been previously used by A. Brogniart in 1822 for aluminite. (Kemp)
2. Aluminite. (Dana)

Wedding (Derb.). The accidental meeting or collision between a loaded and an empty bucket in a mine-shaft when hoisting with a swinging rope, without guides. (Gresley)

Wedge. In ceramics, to cut as clay, into wedgelike masses and work by dashing together, as to expel air bubbles. (Webster)

Wedge ring (Eng.). A wedging crib. (Gresley)

Wedge rock. An expression used on the Comstock lode to designate rock too poor to be classed as "pay ore" or even "second-class ore," but better than waste. It usually assays under $5 per ton. When a car is placed on the cage to be hoisted, it is specially tagged in the case of good ore. If it be waste no tag is used; it became the custom to throw a wooden wedge on top of the car of very low-grade ore, hence the term "wedge-rock." (Eng. and Min. Jour., vol. 93, p. 391)

Wedging. The material, moss or wood, used to render the shaft-lining tight. (Ihlseng)

Wedging-curb; Wedging-crib (Eng.). A curb used to make a water-tight packing between the tubbing in a shaft and the rockwalls, by means of split deals, moss, and wedges, driven in between the curb and the rock. (Raymond)

Wedging down. Breaking down the coal at the face with hammers and wedges instead of by blasting. (Gresley)

Wedging out (Eng.). Cropping out, or thinning out (Gresley). Said of coal beds.

Wedging shot. An opening shot (Steel). A center-cut

Wedgewood ware. In ceramics, a fine hard porcelainlike ware first produced by Josiah Wedgwood (1730–95) of England. It consists of a tinted clay ground, with small cameo reliefs in white paste, applied before firing (Webster). The principal varieties are: (a) *bamboo ware*, yellowware named from its color; (b) *basalt ware*, ware with a black body, used for relief placques, medallion portraits, vases, etc.; (c) *cameo-ware* (which *see*); (d) *jasper-ware* (which *see*); (e) *pebble ware*, ware with a variegated body of different colored clays intermingled, called, according to pattern, *agate, Egyptian pebble, granite, lapis-lazuli, porphyry, serpentine, verd-antique*, etc.; (f) *queen's ware* (which *see*). (Standard)

Weeldrons (Forest of Dean). Ancient ironstone workings (Gresley). Also Weeldon. Probably a variation of *Wealden*, the lowest division of the Lower Cretaceous in England.

Weeper; Weep hole. A hole in a retaining wall to permit the escape of water from behind (Standard).

Weeping rock. A porous rock from which water oozes. (Century)

Weese (Scot.). An iron joint-ring covered with flannel, and tarred or tallowed, for insertion between pump pipes. (Barrowman) *Also* Weize.

Wehrlite. 1. A variety of peridotite composed essentially of olivine and monoclinic pyroxene. (La Forge)
2. A foliated bismuth telluride of doubtful formula, containing about 30 per cent tellurium, and often some silver. (Dana)

Weigh (So. Wales). A weight of 10 tons of coal, etc. (Gresley)

Weigh basket; Weigh pan. Any receptacle in which the coal is weighed after it is dumped from the mine cars. (Steel)

Weigh board (Eng.). Clay intersecting or separating a vein (Bainbridge). *See* Wayboard.

Weigh bridge (Eng.). A platform large enough to carry a wagon, resting on a series of levers, by means of which heavy bodies are weighed. (C. and M. M. P.)

Weighing (Eng.). The crushing or falling in of the roof, more or less rapidly (Gresley). *Compare* Weight, 1.

Weigh pan. *See* Weigh basket.

Weight. 1. (Scot.) The pressure of the upper strata on the coal face, by which, if the working is systematically carried on, the excavating of the mineral is facilitated. (Barrowman)
2. (Eng.) The number of hundredweights (cwts.) which are reckoned as one ton as between coalmasters and workmen (hewers, trammers, banksmen, etc.). (Gresley)
3. (Aust.) A pennyweight. 4. The quality of being heavy; a measure of the force of gravity. (Webster)
5. In founding, to place weights upon (the upper box of a flask), to prevent the parts from separating by pressure of molten metal. (Standard)

Weighting (Eng.). Undergoing disturbance due to weight. Commonly known as being "on the weight" or "taking weight" (Gresley). Said of the roof of a mine.

Weir. 1. An obstruction placed across a stream for the purpose of diverting the water so as to make it flow through a desired channel, which may be a notch or opening in the weir itself. The term usually applies to rectangular notches in which the water touches only the bottom and ends, the opening being a notch without any upper edge. (C. and M. M. P., p. 138). A dam.
2. That part of a dam, embankment, canal bank, etc., which contains gates and over which surplus water flows: specifically called Waterweir. (Standard)

Weir table. A record or memorandum used to estimate the quantity of water that will flow in a given time over a weir of a given width at different heights of the water. (Century)

Weiselbergite. Rosenbusch's name for those augite-porphyrites whose groundmass consists of a second and sometimes a third generation of plagioclase rods and augites, arranged in flow lines in a glassy basis. Wadsworth uses the name for an altered andesite glass. (Kemp)

Weize (Scot.). A band or ring of spun yarn, rope, gutta-percha, lead, etc., put in between the flanges of pipes before bolting them together, in order to make a water-tight joint (Gresley). Packing: *See also* Weese.

Weld. 1. To join pieces of metal by pressure, at a temperature below that of complete fusion. (Raymond)
2. The consolidation of pieces of metal by welding; also, the closed joint or welded seam so formed. (Standard)

Welder. 1. One who or that which welds. 2. A step-down transformer specially constructed for electric welding. (Webster)

Welding-heat. The temperature necessary in order that two pieces of material may be welded together; especially the white heat at which bars of iron unite in a weld. (Standard)

Welding powder. A flux used in welding, usually consisting of borax, ammonium chloride, iron-filings, and sometimes of a resinous oil: mixed in different proportions. (Standard)

Welding-swage. A swaging-tool used to aid in closing the seam of a weld. (Standard)

Welding-transformer. A step-down transformer used in welding (Standard). *See* Welder, 2.

Weld-iron. Wrought-iron (Raymond). A term suggested by an international committee of the American Institute of Mining Engineers.

Weldon mud. *See* Weldon process.

Weldon process. A process for the recovery or regeneration of manganese dioxide in making chlorine, by means of milk of lime and the oxygen of the air. The regenerated product (Weldon mud) is a slime containing compounds of calcium and manganese, and yields chlorine when treated with hydrochloric acid. (Webster)

Weld-steel. Puddled steel: a term suggested by an international committee of the American Institute of Mining Engineers. (Standard)

Well. 1. The crucible of a furnace. (Raymond)
2. A shaft or hole sunk into the earth to obtain oil, gas, water, etc.
3. A hollow cylinder of masonry sunk to form a foundation. (Webster)
4. A cavity in the lower part of some sorts of furnaces to receive falling metal (Standard). 5. *See* Trap, 5.

Well-boring jar. *See* Jars.

Well drill. Same as Churn drill. (Bowles)

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Well-drill holes. Holes drilled by means of an apparatus known as the well drill, or similar to that, and used for blasting on comparatively large scale. Such holes are usually 5 or 6 inches in diameter and from 30 to 150 feet deep. (Du Pont)

Well hole (Aust.). The sump, or portion of a shaft below the place where skips are caged at the bottom of the shaft, in which water collects. (Power)

Wellman producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 323)

Well packing. A bag of flaxseed or other absorbent material packed around the tube of an oil well to prevent access of water to the oil in the well. (Standard)

Well rig. An assemblage of all mechanisms, including power-motors, necessary to drilling, casing, and finishing a tube or drilled well. (Standard)

Well shooting. The firing of a charge of nitroglycerin, or other high explosive, in the bottom of a well for the purpose of increasing the flow of water, oil, or gas. (Du Pont)

Well sinker. One who sinks or digs wells (Century). Also called Well borer.

Wells of Stromboli. Cavities at the summit of the volcano Stromboli, containing water, probably condensed from vapor from the interior. (Standard)

Well tube. A tube or tubing used to line wells. (Standard)

Well-tube filter. A strainer on a driven well tube to keep out grit. (Standard)

Well-tube point. A point at the end of a perforated tube used for sinking wells. (Standard)

Welsh bord (Aust.). A room in which mine waste is stored in the middle, and a roadway is kept open on either side. (Power)

Welsh lay. A slate 3 feet long by 2 feet wide. (Standard)

Welshman. A heavy steel ring about three or four inches inside diameter, used in withdrawing a bar which is stuck or frozen in a skull of iron. The ring is placed on the bar, a wedge inserted, and the bar backed out by sledging on the wedge. (Willcox)

Welsh process. A process consisting of a succession of roasting and calcining copper ore, thereby obtaining a gradual concentration of copper by the oxidation of most of the foreign matter, part of which forms slag. Blister copper is produced with only a small percentage of impurities (Goesel). Also called English process.

Wenlock formation (Eng.). A characteristic group of limestone, slate, and shale of the Upper Silurian strata, typically developed near Wenlock, in Shropshire. (Page)

Wenlock group. *See* Wenlock formation.

Wernerian. Of or pertaining to A. G. Werner (1750–1817), a German mineralogist and geologist who classified minerals according to their external characters, and advocated the theory that the strata of the earth's crust were formed by depositions from water; neptunian. (Webster)

Wernerite. Common scapolite. A mineral of the scapolite group, intermediate in composition between meionite and marialite. (Dana)

Westfalite. A blasting explosive composed of ammonium nitrate and resin. (Webster)

Westphal balance. A form of balance used in determining the specific gravity of liquids, mineral, fragments, etc. (Webster)

Westrumite. A "soluble oil" patented by Westrum in 1903, for the sprinkling of roads with the object of "laying" dust. It is an emulsion of oil in a large quantity of water. (Bacon)

Wet-bulb thermometer. That one of two similar thermometers of a psychrometer, the bulb of which is moistened (Webster). *See* Psychrometer.

Wet gas. Natural gas that contains more or less oil vapors. It occurs with or immediately above the oil. Also sometimes called Casing-head gas.

Wetherill's furnace. A furnace with perforated iron bottom, under which a blast is introduced, and upon which zinc ore (red oxide) is reduced (Raymond). A muffle furnace for roasting zinc ores. (Ingalls, p. 159)

Wetherill's magnetic separator. An apparatus for separating magnetic minerals from nonmagnetic minerals. It consists of two flat belts, the upper of which is the wider, run parallel to each other, and over long magnets set obliquely to the belts. Consequently magnetic particles are drawn up against the upper belt, and as they pass beyond the influence of the magnets, fall from the edge past the other belt into a bin. Another form operates by belts moving across the line of travel of the main belt. (Liddell)

Wethey furnace. A multiple-deck, horizontal furnace for calcining sulphide ores. Resembles the Keller furnace. (Hofman, p. 195; Ingalls, p. 111)

Wet method. 1. In the manufacture of Portland cement, mixing of raw materials in a wet condition. This method is usually employed where marl is used, the marl being usually wet when excavated and is kept wet during the entire process until it reaches the kilns. (Bowles)
2. Any hydro-metallurgical process, as the cyanide process, flotation, etc. *See* Wet process.

Wet milling-plant. A mill in which a wet process is employed. (Rickard)

Wet milling plant. A mill in which water is wasted; it is a sloppy establishment. (Rickard)

Wet natural-gas. Natural gas which contains readily condensible gasoline, that may be extracted in quantity sufficient to warrant the installation of a plant. (Bacon)

Wet pan. A machine used in the preparation of clay products and consisting of a revolving pan with two large mullers, underneath which the charge of wet clay has to pass. (Watson, p. 521)

Wet place (Aust.). A place is considered wet if men have to work constantly in 3 inches of water or more, or when water is constantly dripping on them from the roof. (Power)

Wet process. A metallurgical process in which the valuable contents of the ore are dissolved by acid or other solvents; a leaching or lixiviation process. Opposed to Dry process.

Wet puddling. The ordinary process of puddling in which the furnace is lined with material rich in oxide of iron. (Standard)

Wet rods (Scot.). Pump rods inside the pipes in a bucket lift. (Barrowman)

Wetterdynamite. Originally, only guhr dynamites to which were added salts containing water of crystallization, as Glauber's salts, ammonium oxalate, etc., with the view of making them available in mines containing fire damp. (Brunswig, p. 307)

Wetter-off. In glassmaking, a worker who detaches the blown glass from the pipe by touching it with a wet tool. (Webster)

Wey; Weigh (Eng.). A certain weight of coal usually 10 tons, upon which a royalty is paid. (Gresley)

Wharl; Wharr (Newc.). A sledge for hauling corves in low drifts. (Raymond)

Whave (Prov. Eng.). To turn while drying, as pottery. (Standard).

Wheal. The Cornish name for a mine. (Skinner)

Wheel (Corn.). An abbreviation of water wheel, implying a water engine. (Pryce)

Wheel base. The distance between the points of contact of the front and back wheels of any vehicle with the rails, or other surface, upon which they travel. (Century)

Wheel brae. 1. (Scot.) A self-acting incline; a cousie. (Barrowman)
2. A flat or landing on the top of an incline. (Gresley)

Wheeler (Aust.). A lad who drives horses drawing skips to and from working places, and the nearest collecting station. (Power)

Wheelerite. A yellowish resin, found in the Cretaceous beds of northern New Mexico, filling the fissures of the lignite, or interstratified in thin layers. It is soluble in ether. (Bacon)

Wheel house (Brist.). A shed for protecting the horse gin or other hoisting apparatus. (Gresley)

Wheelman (Scot.). The man who attends to the wheel or drum at an incline. (Barrowman)

Wheel ore. Same as Bournonite. So-called when occurring in wheel-shaped twin crystals. (Webster)

Wheel pit. A pit in which the lower part of a fly wheel runs. (Webster)

Wheel race. The place in which a water wheel is set. (Webster)

Wheel scraper. A scraper mounted upon an axle supported by a pair of wheels. It affords an easy means of conveying a loaded scraper to a dumping ground. (Bowles)

Wheeltree (Scot.). A prop to which the pulley on a short self-acting incline is fastened. (Barrowman)

Whewellite. Calcium oxalate, $CaC_2O_4 + H_2O$. In small colorless monoclinic crystals. From Saxony, with coal. (Dana)

Whim. A large capstan or vertical drum turned by horse power or steam power, for raising coal, or water, etc., from a mine (Hargis). Called also Whimsey; Whim gin; Horse gin.

Whim driver (Corn.). One who attends to the horse at the whim. (Min. Jour.)

Whim gin. *See* Whim.

Whim kibbal (Corn.). A bucket or small tub used in connection with a whim for hoisting ore, rock, or water. (Pryce)

Whim rope; Whim chain (Corn.). The rope or chain by which the kibble is attached to the winding engine or whim. (Min. Jour.)

Whimsey (Eng.). An old word for the hoisting apparatus at a mine, now known as the winding engine; a whim. (Gresley)

Whim shaft (Corn.). The shaft through which the ore is raised by means of a whim. (Whitney)

Whin. 1. Whinstone or whinrock. In Nova Scotia the miners apply this term to a thick-bedded rock composed of grains of quartz with argillaceous or feldspathic matter which might be called a greywacke. (Roy. Com.)
2. (Scot., No. of Eng.) Any very hard resisting rock encountered by miners (Gresley). The Scotch name for greenstone.
3. A whim or winch. (Webster)

Whin dike (Scot.). A dike or wall of igneous rock. (Barrowman)

Whin float (Scot.). A kind of greenstone, basalt, or trap, occurring in coal measures. (Gresley)

Whin gaw (Scot.). A narrow dike of whin. (Barrowman)

Whinny. Resembling or abounding in whinstone. (Standard)

Whinsill (No. of Eng.). A sill or intrusive sheet of whinstone, especially one of great extent. (Webster)

Whinstone (Scot. & Eng.). Basaltic rock; also, among miners, any of various other dark resistant rocks, as chert or diabase (Webster). Greenstone.

Whip. 1. The simplest horse-power hoisting machine, consisting of a fixed pulley and a hoisting rope passing over it, to which the animal is directly attached (Raymond). When used with a derrick or gin called Whip-and-derry.
2. One who operates such a hoisting apparatus. (Standard)

Whip-and-derry. *See* Whip, 1.

Whip gin. A gin-block for use as a whip, as in hoisting (Standard). *See* Whip, 1.

Whipper. One who raises coal, merchandise, etc., with a whip, as from a ship's hold (Standard). *Compare* Coal whipper.

Whipping. 1. The thrashing about of a moving rope, as a hoisting cable in a mine shaft. *See* Surging. 2. Hoisting ore, coal, or other material by means of a Whip, 1.

Whipping hoist. A hoist worked with a whip, especially if by steam power. (Standard)

Whipsy-derry. 1. (Eng.) A whip-and derry. (Standard).
2. *See* Derrick, 2.

Whirley (Scot.). A hutch, hurley, or tub. (Barrowman)

Whirling table. A potter's wheel. (Webster)

Whisket (Eng.). A shallow, oval, coal basket. (Hunt)

Whistler. *See* Squealer.

White agate. Same as Chalcedony.

White alkali. 1. Refined soda ash. 2. A mixture of alkaline salts forming a white deposit on soil. (Webster)

White antimony. The mineral valentinite, Sb_2O_3. (Dana)

White arsenic. Arsenolite; arsenious oxide, As_2O_3. (Dana)

White-ash coal. Coal leaving a white ash. (Chance)

White Bengal fire. A very brilliant light produced by means of pure metallic arsenic. (Century)

White brass. An alloy of copper and zinc, with a comparatively small portion of copper. (Webster)

White bronze. A light-colored variety of bronze due to increased proportion of tin. (Standard)

White coal. 1. Water power; first so called by the French (*houille blanche*). 2. Tasmanite. (Webster)

White cobalt. A name frequently applied to smaltite; also to cobaltite.

White copper. A white alloy of copper. *See* Paktong (Webster). Usually German silver.

White copperas. 1. The mineral coquimbite. 2. The mineral goslarite. (Webster)

White damp. Carbon monoxide, CO. A gas that may be present in the afterdamp of a gas- or coal-dust explosion, or in the gases given off by a mine fire; also one of the constituents of the gases produced by blasting. Rarely found in mines under other circumstances. It is an important constituent of illuminating gas, supports combustion, and is very poisonous.

White furnace. *See* Howell furnace.

White garnet. Leucite. (Power)

White gunpowder. A blasting compound formed of potassium chlorate, potassium ferrocyanide and sugar. (Standard)

White horse. 1. (Scot.) Intruded white trap in a coal seam. (Barrowman)
2. A term used by quarrymen to denote a light-colored gneiss, aplite or pegmatite. (Perkins)

White-hot. Heated to full incandescence so as to emit all the rays of the visible spectrum, in such proportion as to appear dazzling white. (Century)

White-Howell furnace. A revolving, cylindrical furnace for calcining calmaine. *See* Oxland and Hocking furnace. (Ingalls, p. 124)

White iron. 1. A hard crystalline cast iron containing combined carbon. 2. Tinned sheet iron. (Standard)

White iron-ore. An early name for siderite. (Chester)

White iron-pyrite. *See* Marcasite.

White latten. An alloy of copper, zinc, and tin, in thin sheets. (Standard)

White lead. A pigment composed of approximately 75 per cent lead carbonate and 25 per cent hydrated lead oxide. (Standard)

White lead-ore. The mineral cerussite, $PbCO_3$. (Power)

White metal. 1. The product of the fourth stage of the English method of smelting copper ores (Standard). Contains 77 to 79 per cent copper. 2. Any one of several white alloys, as pewter, britannia, etc. Also frequently applied to silver as contrasted with gold, the yellow metal.

White mineral-press. A machine for briquetting flue dust. (Hofman, p. 404)

White mundic. Arsenopyrite or mispickel.

White nickel. A synonym for both Rammelsbergite and Chloanthite. (Chester)

Whitening. Tin-plating. (Standard)

White oil. An odorless and colorless oil possessing a specific gravity of 0.857. It is used medicinally and as a base for creams, salves, and ointments. *See* Oil of paraffin; Petrolatum. (Bacon)

White olivine. The mineral fosterite, Mg_2SiO_4. (Power)

White pyrite. Same as Marcasite. (Standard)

White rent (Local Eng.). An annual tax of eightpence upon every tinner in Cornwall and Devon, paid to the lord of the soil, formerly to the Prince of Wales as Duke of Cornwall. (Standard)

White rock. A dolerite of nearly white color associated with coal in Staffordshire and elsewhere. (Power)

White salt. Salt dried and calcined; decrepitated salt. (Webster)

White schorl. The mineral albite. (Standard)

White silver-ore. An old name for argentiferous tetrahedrite. (Chester)

Whitestone. 1. (Aust.) An indurated clay band in the Greta seam, thickly strewn with plant impressions. (Power)
2. A literal translation of the German *Weisstein*, the name of a rock now generally known as granulite, but sometimes called leptinite. (Century)

White tellurium. The mineral sylvanite, $(Au,Ag)Te_2$. (Chester)

White tin. Metallic tin after smelting, in contradistinction to *black tin* or cassiterite. (Power)

White tombac. A variety of brass made white by the addition of arsenic. (Standard)

White ultramarine. A white substance obtained when the ingredients used in the manufacture of artificial ultramarine are heated with access of air. (Standard)

White vitriol. Zinc sulphate; goslarite. Also called Salt of vitriol; Zinc vitriol.

Whitewash. A white scum of soluble sulphates which accumulates on the surface of a brick or other clay product during or after manufacture. (Ries)

Whiting. A white levigated and washed chalk used as a pigment and for polishing. According to its quality, it is known variously as *Spanish white* or *whiting* and *Paris white*. (Standard)

Whitneyite. A pale reddish-white copper arsenide, Cu_9As (As 11.6 per cent). (Dana)

Whits; Witts (Corn.). *See* Tin-witts.

Whitwell stove. A fire-brick hot-blast stove, on the regenerative system. (Raymond)

Whole; Whole mine. 1. (No. of Eng.) That portion of a coal seam being worked by driving headings into it only, or the state of the mine before mining the pillars. (Gresley) 2. (Derb.). Any ore that has not been mined. (Hooson)

Whole coal (Eng.). A district of coal entirely intact (G. C. Greenwell). *See* Virgin coal.

Whole cradle (No. of Eng.). A working platform or scaffold of nearly the same diameter as the shaft, and suspended from the surface. (Gresley)

Whole flat (No. of Eng.). A panel or district in which headings have been driven, prior to mining the pillars. (Gresley)

Whole stalls (So. Wales.) Two or more stalls having their faces in line or on a cleat with one another. (Gresley)

Whole-working (Newc.). Working where the ground is still whole, *i. e.*, has not been penetrated as yet with breasts. Opposed to pillar-work, or the extraction of pillars left to support previous work (Raymond). *See* Whole flat.

Whorled (Scot.). The cage is said to be whorled when it is drawn up to or over the pulleys. (Barrowman)

Whorler. A potter's wheel. Also called Whirler. (Standard)

Whorls (Scot.). Pithead or shaft pulleys. (Barrowman)

Whunstane (Scot.). Same as Whinstone.

Wich; Wych. Celtic for salt-spring; often used in England as the termination of names of places where salt is or has been found, as Droit*wich*, Nant*wich*, etc. (Oldham)

Wichtisite. A glassy phase of diabase, named from a Finland locality, Wichtis. *Compare* Sordavalite. (Kemp)

Wicket; Wicket work (No. Wales). A kind of pillar-and-stall, or bord-and-pillar, system of working a seam of coal, with pillars up to 15 yards and stalls up to 24 yards wide. (Gresley)

Widemouth socket. A well borer's fishing tool, in which the socket is fitted with a bellmouth, nearly the full bore of the casing, thus making it easy to grip the ends of broken poles or the like, when lost at the bottom of a well. (Nat. Tube Co.)

Wide-work. 1. (Eng.) A form of the pillar-and-breast method of excavating coal (Standard). 2. Room or chamber driving, as distinguished from entry or gangway driving or narrow work.

Widowmaker. *See* Rock drill.

Width. The thickness of a lode measured at right angles to the dip. (Skinner)

Wiggletail. *See* Rock drill.

Wildcat. 1. To act or carry on recklessly or wildly. 2. Originated or characterized by wild, irresponsible speculation; unreliable or unsafe by reason of reckless financiering; as, a *wildcat* bank. (Standard). 3. A mining company in which the management raises money, often by exaggerated and misleading statements, intending to use the funds so raised for personal profit rather than for the development of the property and without regard to securing an adequate return to the investors. A malign intent is not a necessary

characteristic, for the term is now used as follows: 4. Specifically applied to a mining or oil company organized to develop unproven ground far from the actual point of discovery. Any risky venture in mining.

Wildcatter. 1. (U. S.) One who drills wells in the hope of finding oil in territory not known to be an oil field (Webster). 2. One who locates a mining claim far from where ore has been discovered or developed. 3. One who organizes or assists in the organization of a wildcat. *See* Wildcat, 3 and 4.

Wildcatting. 1. Drilling wells for oil in territory not yet proven to be oil bearing. 2. Locating mining claims outside of well-developed, or known mineral deposits, or far from the actual point of discovery. 3. Organizing and exploiting a risky venture. *See* Wildcat, 3 and 4.

Wild coal. Brittle slate interstratified with thin coal seams. Also called rashings. The roof of the Pitsburgh seam in western Maryland. (Md. Geol. Surv., vol. 5, p. 534)

Wildfire. (Eng.). An old term used by colliers for fire damp. (Gresley)

Wild gas. Blast-furnace gas that does not burn steadily or properly. (Willcox)

Wild heat (of Steel). A heat of molten steel which is boiling violently, and so, if poured, honeycombs the ingot with contained gases (Webster). *See also* Heat, 2.

Wild lead. Zinc blende. (Raymond)

Wild steel. Steel made from a wild heat, which *see*. (Webster)

Wild well. An oil well, the flow of which cannot be brought under control. (Redwood, p. 244)

Wild work. A kind of bord-and-pillar system of coal mining in which the very narrow pillars left to support the roof are not recovered. (Webster)

Wilfley slimer. A form of shaking canvas table which is given a vanner motion. (Liddell)

Wilfley table. A side-jerk table used in ore-dressing. It has a riffled surface which separates the light and heavy grains into layers by agitation, and the jerking action then throws the heavy grains toward the head end, while the light grains are washed down over the cleats into the tailings box. The table tapers toward the head end, and the riffles are progressively longer toward the tailings side. The Dodd, Cammett, Hallett and Woodbury are similar types. (Liddell)

Willemite Zinc silicate, Zn_2SiO_4. Contains 58.6 per cent zinc. The zinc is commonly replaced in part by manganese. (U. S. Geol. Surv.)

Williams hinged-hammer crusher. A crusher with a rotating central shaft carrying a number of hinged hammers, which fly out from centrifugal force, crushing the feed against the casing. (Liddell)

Williamsite. An apple-green impure variety of serpentine. *See* Jade. (U. S. Geol. Surv.)

Willow pattern. In pottery, a design used in decorating china, originally, the blue china of Nanking, introduced in English porcelain about 1780. (Webster)

Wilson producer. A furnace used for the manufacture of producer gas. (Ingalls, p. 323)

Wiluite. 1. A variety of vesuvianite. (Dana)
2. A green aluminum garnet. (Standard)

Wimble (Eng. and Scot.). A hollow instrument for cleaning a hole in boring; a kind of shell auger. Some varieties of wimble, suitable for boring into soft clay, are called Wimble-scoops (Century). Also spelled Wammel, Whimble, Wumble.

Wimble-scoop. *See* Wimble.

Win. 1. To extract ore or coal (Raymond). To mine, to develop, to prepare for mining. (Century)
2. To recover metal from an ore. (Webster)

Winch; Windlass. A man-power hoisting machine, consisting of a horizontal drum with crank handles (Raymond). Also, now operated by steam, as a steam winch.

Wind. 1. (Eng.) A hand-windlass or jack-roll. 2. To raise coal, etc., by means of a winding-engine. 3. A steam engine used purposely for lowering and raising men in an engine pit or pumping shaft. 4. A single journey of a cage from top to bottom of a shaft, or vice versa. (Gresley)

Wind blast. 1. (Aust.) A quantity of air driven out of mine workings with considerable force by a fall of roof. (Power)
2. A blown-out or "windy" shot.

Windbore (Newc.). The suction pipe at the bottom of a set of pumps (Raymond). *See* Snore piece; *also* Snore hole.

Wind furnace. Any form of furnace using the natural draft of a chimney without the aid of a bellows or blower. (Duryee)

Wind gage. An anemometer for testing the velocity of the air in mines. (Gresley)

Wind hatch. In mining, an excavation or opening for removing ore. (Standard)

Windhole (Eng.). A shaft or other opening for ventilation. (Bainbridge)

Winding. Hoisting coal or ore with a rope wound on a drum; used synonymously with Hoisting. (Chance)

Winding bar. The appliance on drop bottom ore or coal cars by which the doors are closed and held tight.

Winding engine (Eng.). The apparatus fixed within a few yards of the mouth of a shaft for raising the minerals from the bottom, or from various levels, to the surface (Gresley). A hoisting engine; a hoist.

Winding rope. The rope, or cable, which connects the cage with the drum of the winding engine.

Windlass. A roll or drum with handles, used in winding or hoisting from shallow pits.

Windless (Derb.). A place in the mine where the air is bad or short. Also called Airless. (Min. Jour.)

Wind method. A system of separating coal into various sizes, and extracting waste from it, which in principle depends on the specific gravity or size of the coal and the strength of the current of air. (C. and M. M. P.)

Wind road (Eng.). An air passage for mine ventilation.

Windrow. A row of peats or sod set up to dry, or cut in paring and burning. (Standard)

Winds. A variation of winze.

Wind sail. The top part of canvas piping, which is used for conveying air down shallow shafts. (C. and M. M. P.)

Wind wall. *See* Bridge, 1.

Wind way (So. Staff.). An airway leading from one road to another. (Min. Jour.)

Windy shot. A blast in coal mines which, due to improperly placed charges, wrong kind or quantity of explosives, or insufficient stemming expends most of its force on the mine air, and sometimes ignites a gas mixture, coal dust, or both, thus causing a secondary explosion which may or may not spread throughout the mine.
A shot which blows out without disturbing the coal (Athens Min. Co. *v.* Carnduff, 123 Illinois App., p. 183.) A shot that is not properly directed or loaded. (Bolen-Darnell Coal Co. *v.* Hicks, 190 Fed. Rept., p. 720). A blown-out shot.

Wing (Scot.). The point plate of a tram crossing. (Barrowman)

Wing bore (Scot.). A side or flank bore-hole in a working place approaching old workings. (Barrowman)

Wing dam. A dam built partly across a river to deflect the water from its course. (Duryee)

Winged pillars (Scot.). Pillars of coal that have been reduced in size. (Barrowman)

Wings. 1. The sides, or limbs, of an anticline. *See* Legs. (Power)
2. Same as Rests, Keeps, Chairs, Dogs.

Winning. 1. A new mine opening. 2. The portion of a coal field laid out for working. (Raymond)
3. Mining.
4. (Scot.) A pit (mine) and its associated equipment and machinery. (Barrowman)

Winning bord (Aust.). A room from which coal is being mined. (Power)

Winning headway. 1. (Newc.) A headway driven to explore and open out the coal seam. (Raymond)
2. (No. of Eng.) A cross-heading, or one driven at right angles to the main gangway (Century)

Winning-off (Aust.). A leading heading or drive in advance from which rooms, or bords, are opened. Any leading drift is termed a "winning." (Power)

Winning pillars (Aust.). Extracting coal pillars. (Power)

Winnowing gold. Air-blowing. Tossing up dry powdered auriferous material in air, and catching the heavier particles not blown away. (C. and M. M. P.)

Winooski marble. A siliceous dolomite of a mottled chocolate, red, pink, yellow, and white color, and used as a marble for tiling and wainscoting; from Mallett's Bay, on Lake Champlain. (Merrill)

Win out (Scot.). To widen out, as where long wall working is being commenced. (Barrowman)

Winter dumps (Alaska). Gold-bearing gravel mined during the winter and stored on the surface for sluicing in the spring and summer.

Winter oil. A heavy railway-car and engine oil which has a solidifying point of below —20° F. (Bacon)

Winze. A vertical or inclined opening, or excavation, connecting two levels in a mine, differing from a raise only in construction. A *winze* is sunk underhand and a raise is put up overhand. When the connection is completed, and one is standing at the top, the opening is referred to as a winze, and when at the bottom, as a *raise*, or *rise*. *Compare* Underground shaft.

Wiper. 1. A rod on which is held a piece of cotton waste or other absorbent material and used for drying a drill hole before charging with black powder. (Gillette, p. 441)
2. A form of cam.

Wire. (War.) A haulage rope. (Gresley)

Wire bars. Refined copper bars cast into bars for wire drawing. (Weed)

Wire drawing. 1. The operation, accidental or otherwise, of reducing the pressure of steam between the boiler and the cylinder. (Ihlseng)
2. The act or art of extending ductile metal into wire. (Century)

Wire gage. 1. A gage for measuring the diameter of wire or thickness of sheet metal. 2. A standard series of sizes arbitrarily indicated by numbers, to which the diameter of wire or the thickness of sheet metal is usually made, and which is used in describing the size or thickness.

Wire gauze. A gauze-like texture of fine wire, as that used for the chimneys of flame safety-lamps.

Wire glass. Glass in which wire netting is embedded to increase its strength. (Webster)

Wire rod. A metal rod from which wire is drawn. (Webster)

Wire rope. A rope whose strands are made of wires, twisted or woven together. (C. M. P.)

Wire ropeway. A ropeway using a wire cable or cables. Used for conveying ore and supplies in rough mountainous districts; a wire tramway. *See* Aerial tramway.

Wire silver. Native silver in the form of wire or threads. (Webster)

Wire tramway. *See* Aerial tramway.

Wisket; Whisket (Lanc.). A light basket weighing about 25 pounds, used for carrying coal, etc., up a shaft. (Gresley)

Witchet (No. Wales). *See* Wicket.

Withamite. A red to yellow variety of epidote, containing a small quantity of manganese. (Standard)

Witherite. Native barium carbonate $BaCO_3$. (Dana)

Witness corner. A post set near a corner of a mining claim with the distance and direction of the true corner indicated thereon. Used when the true corner is inaccessible. (Shamel, p. 321)

Witts. *See* Tin-witts.

Wohlwill process. An electrolytic process of gold refining, using impure gold bullion as anodes and sheet gold cathodes in a solution carrying 25–30 ounces free HCl (specific gravity 1.19) per cubic foot. If the anodes contain lead some H_2SO_4 is added. The current density is about 100 amperes per square foot, the potential 1 volt. The tanks usually used are porcelain. Patinum and the allied metals remain in the electrolyte, the silver settles out as chloride. (Liddell)

Wolchonskoite. An amorphous, dull, bluish-green, fragile chromiferous clay. (Standard)

Wolf process. A flotation process invented by Jacob D. Wolf in 1903. He used sulphochlorinated or other oils and aimed to secure a high extraction with a low grade of concentrate in the first step, and by washing with hot water to concentrate the concentrate in a second step. Apparently no commercial use was made of it. (Liddell)

Wolfram. 1. (Ger.) A native tungstate of iron and manganese; *See* Wolframite.
2. The metal tungsten or wolframium: An improper and now uncommon use. (Century)

Wolframinium. A light aluminum alloy similar to Romanium. (Webster)

Wolframite. A series of minerals composed of tungstate of iron and manganese, $(Fe,Mn)WO_4$, containing, when the iron and manganese are in a ratio of 1 to 1, 76.4 per cent WO_3. As the iron increases and the manganese decreases wolframite grades into ferberite, the iron tungstate, $FeWO_4$, with 76.3 per cent WO_3. At the other end of the series is hübernite, the pure manganese tungstate, containing 76.6 per cent WO_3. (U. S. Geol. Surv.)

Wolframium. Tungsten: the scientific name. (Standard)

Wolfram lamp. A tungsten lamp. (Webster)

Wolfram ocher. The mineral tungstite, WO_3. (Webster)

Wolfram steel. Same as Tungsten steel. (Standard)

Wolfsbergite. 1. Same as Chalcostibite. (Dana)
2. Same as Jamesonite. (Standard)

Wollastonite. A white mineral of the pyroxene group consisting of silicate ($CaSiO_3$) of calcium and a common product of the metamorphism of limestone by intrusive igneous rocks. Often in aggregates of flat prismatic crystals without distinct crystal planes or faces. (Ransome)

Won (Eng.). Proved, sunk to, and tested. Coal is won when it is proved and so developed that it can be worked and conveyed from the mine. (Gresley)

Wonder stone. A variety of stone consisting of yellow crystals of calcite disseminated through dark-red earthy dolomite. (Standard)

Wood. 1. (Eng.) Signifies mine timbers, bars, sprags, chocks, lagging, etc., which are all used in various ways for supporting the roof and sides of underground workings. (Gresley)
2. Agatized, opalized, petrified, silicified wood; a material composed of opal or chalcedony (agate) and formed by the replacement of wood by silica. The replacement of the woody matter by the silica takes place in such a way that the original form and structure of the wood is preserved. (U. S. Geol. Surv.)

Wood agate. Agate formed by the petrification of wood. *See* Wood, 2.

Woodbury jig. A jig with a plunger compartment at the head end, so that the material is given a classification in the jig. (Liddell)

Woodbury table. A table of the general Wilfley-Overstrom-Card type, with riffles parallel to the tailings side, and a hinged portion without riffles (unlike the Card). The table top is a rhomboid, and the riffles gradually shorten as they near the tailings side. (Liddell)

Wood chain (So. Staff.). A hoisting chain, the iron links of which are filled with small blocks of wood. (Gresley)

Wood coal. 1. Lignite. *See* Board coal. 2. Charcoal. (Webster)

Wood copper. A fibrous olivenite. (Dana)

Wooders (York). Timbermen employed in mines. (Gresley)

Wood hematite. A finely radiated variety of hematite, exhibiting alternate bands of brown or yellow of varied tints. (Power)

Wood iron. A fibrous variety of chalybite (siderite), $FeCO_3$. (Power)

Wood opal. A variety of opal consisting of wood in which the organic matter has been replaced by silica; silicified wood. Called also Xylopal. (Standard)

Wood peat. Peat formed from decayed wood, leaves, etc., in forests. (Standard)

Wood process. A flotation process utilizing the surface tension of water, either fresh, acid, or salt. (Megraw, p. 73)

Wood ringer (Eng.). *See* Ringer 1; and Dog and chain, 1. (Gresley)

Woodrock. A variety of asbestos resembling wood. (Standard)

Woodstone. Petrified wood, as wood opal. (Standard)

Wood tin. A nodular variety of cassiterite, or tinstone, of a brownish color and fibrous structure, and somewhat resembling dry wood in appearance. (Century)

Woolpack. (Eng.). A concretionary mass of crystalline limestone occurring in the form of balls, varying greatly in size, in the Wenlock limestone. Called also Ballstone. (Standard)

Wootz. 1. A variety of steel made in India by the cementation process: the earliest known form of steel (Standard). Prepared from a black iron ore of Hindustan by a process analogous to the Catalan hearth. (Ure)

Work. 1. (Mid.) A stall or working place in a mine. 2. (Eng.) To get, cut away, or excavate and remove any bed or seam, or part thereof, of coal, ironstone or other mineral, whether underground or in open work. To mine. 3. (So. Staff.) A side of work, *which see.* (Gresley)
4. To crumble and yield under the action of a squeeze. Applied to pillars or roof of a coal mine. 5. To be slowly closing under the action of a squeeze. Applied to portions of the mine workings. (Steel)
6. Ore before it is dressed. 7. A place where industrial labor of any kind is carried on. Usually in the plural as a *salt works, iron works,* etc. (Webster)

Workable beds, or veins. Any bed or vein that is capable of being worked, but usually applied to that coal seam or ore deposit which can be mined profitably.

Worked-out. Exhausted (Chance). Said of a coal seam or ore deposit.

Working. 1. *See* Labor, 1. The Spanish and the English terms are synonymous in meaning and alike in application. A working may be a shaft, quarry, level, opencut, or stope, etc. (Raymond). Usually used in the plural. *See* Workings.
2. (Scot.) A name given to the whole strata excavated in working a seam.
3. (Scot.) Making a noise before falling down, such as holed coal at the face, or unsupported roof strata (Barrowman). *Compare* Work, 4 and 5.

Working barrel (Corn.) The cylinder in which a pump piston works. (Raymond)

Working beam (Eng.). A beam having a vertical motion on a rock shaft at its center, one end being connected with the piston rod and the other with a crank or pump rod, etc. A walking beam (C. and M. M. P.). Also, a brake staff.

Working big (Eng.). Said of a vein large enough for a man to work in without breaking any of the adjacent rock.

Working drawing. A drawing or plan, as of the whole or part of a structure or machine, drawn to a specified scale, and in such detail as to form a guide for the construction of the object represented. (Century)

Working face. The place at which the work is being done in a breast, gangway, airway, chute, heading, drift, adit, or crosscut, etc. (Chance). *See* Face.

Working first (Aust.). *See* Whole-working.

Working furnace (Eng.). A mine-ventilating furnace supplied with fresh air from the downcast shaft. (Gresley)

Working home. Working toward the main shaft in extracting ore or coal, as in longwall retreating (Raymond). *See* Longwall method.

Working load. The maximum load that a rope can carry under the conditions of working without danger of straining. Same as Proper working load. (C. M. P.)

Working-on-air. A pump works on air when air is sucked up with the water. (C. and M. M. P.)

Working-on-the-walls. The eroding or corroding of blast furnace lining. (Willcox)

Working out. Working away from the main shaft in extracting ore or coal, as in longwall advancing. (Raymond.) Compare Working home.

Working pit. A mine shaft up which the ore and miners are carried, as distinguished from one used only in pumping. (Standard)

Working place. The place in a mine at which coal or ore is being actually mined (Steel). *See also* Working face.

Working plan. Same as Working drawing.

Working rate. (Scot.). The rate per ton paid to a miner. (Barrowman)

Workings. Any species of development; usually restricted in meaning to apply to the breasts, etc., in contradistinction to the gangways and airways. Often used in a broader sense to mean all the underground developments (Chance). *See* Working, 1.

Working-the-broken (Aust.). The process of removing the pillars in bord-and-pillar work (Power). Same as Second working; Robbing pillars.

Work-lead. Impure pig lead that is to be desilverized or refined (Standard). *See* Base bullion.

Work stone. A plate in the bottom of a blast hearth or ore hearth having a groove down its center for conducting away the molten lead. (Standard)

Work-the-twig (Prov. Eng.). To use the divining rod. (Standard)

Worm; Worm coil (Eng.). A spiral tool, used for loosening tough clays at the bottom of bore holes. *See* Wad coil. (Gresley)

Worming pot. In ceramics, a vessel that discharges color through tubes, for forming strips or worm-like patterns on an article of pottery rotated in a lathe. (Standard)

Wough (Scot.). A wall; the rock beside a vein of lead ore. (Webster)

Wreath. In glass-making, a wavy appearance in glass, especially flint glass, due to defective manufacture. (Standard)

Wreaths (Leic.). Four short pieces of hemp rope placed around the legs of a horse or pony and fastened together above its back, by which it was formerly lowered into or brought up out of a mine. (Gresley)

Wreck (Scot.). A breakdown, as in a shaft or on an incline. (Barrowman)

Wrought iron. The purest form of iron commonly known in the arts, containing only about half of 1 per cent of carbon. It is made either directly from the ore, as in the Catalan forge or bloomery, or by purifying (puddling) cast iron in a reverberatory furnace or refinery. (Webster)

Wrought steel. Weld steel. (Webster)

Wulfenite. Lead molybdate, $PbMoO_4$. Contains 39.3 per cent MoO_3. Calcium, chromium, copper, and vanadium are sometimes constituents. (U. S. Geol. Surv.)

Wurtzilite; Elaterite; Tabbyite; Æonite; Ægerite. An asphaltic mineral which is jet-black by reflected light and deep-red in thin plates. It softens in hot water, toughens, and becomes more elastic. In a candle flame it softens and burns with a bright flame. It is practically insoluble in gasoline of 76° Bé., partly soluble in ether, carbon disulphide, and turpentine, and less so in carbon tetrachloride. (U. S. Geol. Surv.)

Wurtzite. A zinc sulphide of the same composition as sphalerite, ZnS, but hexagonal in its crystallization. (U. S. Geol. Surv.)

Wych. *See* Wich.

Wye (Cumb.). The beam-end connection above the pump-rods of a winding and pumping engine. (Gresley)

Wyomingite. An aphanophyric igneous rock containing leucite, diopside, and phlogopite in a glassy base of much the same composition as orthoclase (La Forge). From the Lucite Hills, Wyoming. This rock was described by Zirkel in 1876 and was the first known occurrence of leucite in America. (Kemp)

Wythern (Eng.). A vein or lode. (Power)

X.

Xacal (Mex.). A miner's cabin; a storehouse for mining supplies; a shaft house (C. and M. M. P.). Also spelled Jacal.

Xalsonte (Sp.). A coarse pay sand or gravel. (Lucas)

Xanthitane. An alteration product of sphene (titanite). Its composition is analogous to the clays, but contains chiefly titanic oxide instead of silica.

Xanthite. A yellowish variety of Vesuvianite. (Webster)

Xanthoconite. Silver-arsenic sulphide, $3Ag_2S.As_2S_5$. Contains 61.4 per cent silver. (U. S. Geol. Surv.)

Xanthophyllite. A hydrous silicate of magnesium, calcium, and aluminum, occurring in crusts or in implanted globular forms. (Dana)

Xanthorthite. A yellow altered variety of allanite that contains considerable water. (Standard)

Xanthosiderite. A hydrated oxide of iron, $Fe_2O_3.2H_2O$, occurring in fine needles or fibers, stellate and concentric; also as an ocher. Golden-yellow to brown. (Dana)

Xenogenites. Posepny's term for mineral deposits of later origin than the wall rock. The name means foreigners, and refers to their later introduction. *Commare* Idiogenites. (Kemp)

Xenolite. A silicate of aluminum, related to fibrolite. (Century)

Xenolith. A fragment of other rock or of an earlier solidified portion of the same mass inclosed in an igneous rock; an inclusion; an enclave. (La Forge)

Xenomorphic. Rohrbach's textural, name for those minerals in an igneous rock, whose boundaries are determined by their neighbors. Its antithesis is automorphic, which *see*. Xenomorphic is synonymous with allotriomorphic, over which it has priority. (Kemp)

Xenon. A very heavy inert gaseous element occurring in the atmosphere in the proportion of one volume in about 20 millions. Symbol, X; atomic weight 130.2; specific gravity, 3.52. (Webster)

Xenotime. Essentially an yttrium phosphate, YPO_4. Cerium and Erbium are sometimes present, also silicon and thorium as in monazite. (Dana)

X-frame brace. A reinforcement bracing of a square-set in which two diagonal pieces of timber cross to form an X. (Sanders, p. 49)

Xihuitl (Mex.). Turquois found by the Aztecs near the City of Mexico. (Halse)

Xilópalo (Sp.). Wood opal. (Halse)

Xonalite. A hydrous silicate of calcium, occurring in massive forms of a white or bluish gray color. (Century)

Xylanthrax. Wood-coal; charcoal: so called in distinction from mineral coal. (Standard)

Xyloidine. An explosive compound produced by the action of nitric acid upon starch or woody fiber, resembling gun cotton. (Century)

Xylopal. *See* Wood opal.

Y.

Yacente (Sp.). Foot-wall, or floor of an ore deposit. (Halse)

Yacimiento (Sp.). 1. A mineral deposit. *See* Criadero. 2. The occurrence or mode of occurrence. (Halse)

Yankee. In founding, a molder's lifting-tool having a curved shank. (Standard)

Yanolite. Same as Axinite. (Standard)

Yardage. 1. Price paid per yard for mining coal. 2. The extra compensation a miner receives in addition to the mining price for working in a narrow place or in deficient coal. Usually at a certain price per yard advanced. (Steel)

Yard price. The price paid per yard driven (in addition to the tonnage prices) for roads of certain widths and driven in certain directions (C. and M. M. P.). *See* Yardage.

Yard service. Transportation of rock from the quarry bank until the time it reaches the main transportation lines. (Bowles)

Yard work (Forest of Dean). Synonymous with Yardage. (Gresley)

Yareta (Bol., Chile, and Peru). A resinous moss found at high elevations, and used as a fuel. (Halse)

Yark (Derb.). To jerk a rope or other appliance used for lifting or drawing. (Gresley)

Yed (Leic.). *See* Head, 1.

Yellow arsenic. Orpiment. (Chester)

Yellow copper. Chalcopyrite.

Yellow copperas. *See* Copiapite.

Yellow earth. Specifically, yellow ocher. (Webster)

Yellow lead-ore. Wulfenite. (Webster)

Yellow metal. 1. Gold. 2. Muntz metal. (Webster)

Yellow ocher. A soft earthy variety of limonite. (Power)

Yellow ore (Corn.). Chalcopyrite. (Raymond)

Yellow orpiment. King's yellow, As_2S_3. (Webster)

Yellow ozokerine. A product resembling vaseline, but less homogeneous, produced from crude ozocerite. (Bacon)

Yellow pyrite. Same as Chalcopyrite. (Standard)

Yellow ratebane. Orpiment. (Webster)

Yellow ultramarine. A pigment consisting of barium chromate. (Standard)

Yellow wax. A viscous, semi-solid, difficultly volatile substance obtained on distillation of petroleum-still residuum. (Bacon)

Yelmo (Mex.). Coke fork. (Dwight)

Yenite. *See* Ilvaite.

Yentnite. A name derived from the Yentna River, Alaska, and suggested by J. E. Spurr for certain granitoid rocks, consisting of oligoclase, acapolite, and biotite, with a few zircons. The acapolite is believed to be an original mineral. (Kemp)

Yeso (Sp.). 1. Gypsum mineral. 2. Calcined gypsum; *Y. blanco*, whiting; *Y. mate*, plaster of Paris. (Halse)

Yesosos (Aguas, Mex.). Copper ore in which calcite or fluorspar predominates as a matrix. (Halse)

Yield. 1. The proportion of coal or ore obtained in mining; the product of a metallurgical process; extraction; recovery. 2. To give way; to crush. Said of pillars of coal when they commence to give way or crush. (Gresley)

Y-level. A level mounted in a pair of Y's: a common form of spirit-level, used in surveying, etc.

Yodo (Sp.). Iodine. (Lucas)

Yogoite. A name suggested by Weed and Pirsson from Yogo peak, one of the Little Belt Mountains, Mont., for a syenitic rock (monzonite) composed of orthoclase and augite in about equal amount. *See also* Sanidinite and Shonkinite. (Kemp)

Yoking. 1. (Eng.) A collision of mine cars. (G. C. Greenwell) 2. In the plural, stakes placed at regular intervals for the purpose of marking the boundaries of a mining claim. (Standard)

Yolk coal; Yolks (Scot.). Free or soft coal. (Barrowman)

Yoredale rocks (Eng.). The upper beds of the English Carboniferous limestone series, or those lying between the Carboniferous limestone proper and the millstone grit. They contain celebrated lead-mines. (Standard)

Yorkshire stone. A building stone of the English millstone grit. (Standard)

Young; Youthful. Being in the stage of increasing vigor and efficiency of action: said of some streams; also, being in the stage of accentuation of and a tendency toward complexity of form: said of some topography resulting from land sculpture. Contrasted with Mature and Old. (La Forge)

Young river. In geology, a river which has begun to form a drainage system in newly raised or newly deformed land. It is characterized by a shallow ungraded channel bordered by numerous lakes; by having but few short tributaries; and from variation in the hardness of its bed rocks, by frequent waterfalls.

Youstone (Eng.). An old term for Chinese jade, or nephrite. (Page)

Youth. That stage in the development of streams when they are increasing in vigor and efficiency; or in land sculpture when topographic forms are being accentuated and are tending toward complexity; contrasted with Maturity and Age. (La Forge) *See also* Young.

Y-track. A track at approximately right angles to a line of railroad, and connected with it by two switches, the plan of the whole approaching the form of a Y with a line joining the ends of its arms: used in place of a turntable. (Standard)

Ytterbite. Same as Gadolinite.

Ytterbium; Neoytterbium. A rare metallic element closely resembling yttrium. It has a valence of three. Symbol, Yb; atomic weight, 173.5. (Webster)

Yttergranat. A calcium-iron garnet containing a small amount of yttria. (Dana). A variety of andradite.

Yttrialite. A silicate of thorium and the yttrium metals chiefly, but it contains also uranium and other elements in small quantity. (U. S. Geol. Surv.)

Yttrium. A trivalent metallic element found (combined) in gadolinite and other rare minerals. Symbol, Y; atomic weight, 89.0. (Webster) Obtained as a dark-gray powder possessing a metallic luster under a burnisher. It decomposes water slowly in the cold but more quickly on boiling.

Yttrium-garnet. A variety of garnet containing a small amount of yttrium earths. *See* Yttergranat. (Century)

Yttrocerite. A hydrous fluoride of cerium, yttrium, erbium, and calcium. (Dana)

Yttrotantalite. A tantalate and niobate of iron, calcium, yttrium, erbium, cerium, etc., occurring in black-brown orthorhombic crystals (Dana). Called also Yttrocolumbite.

Yu (China). Jade. Called also Yuh; Yustone (Standard). *See* Youstone.

Yungas (Bol.). A region of low plains; an alluvial basin, often containing rich placers. (Halse)

Yunque (Mex.). Anvil. (Dwight)

Z.

Zacate (Mex.). Fodder for animals, as hay, cornstalks, etc (Dwight)

Zaccab. A kind of white earth mixed with lime used by the natives of Yucatan for plaster, stucco, etc. (Webster)

Zaffer; Zaffre. An impure oxide of cobalt obtained by a roasting process in which the sulphur and arsenic are driven off. (Humble)

Zaffer-blue. Same as Cobalt-blue.

Zafirina (Sp.). Blue chalcedony. (Halse)

Zafiro (Sp.). 1. Sapphire. 2. Ultramarine; lapis lazuli. (Halse)

Zafra. 1. (Sp.) Gangue; matrix. 2. The sugar crop in Cuba. (Halse)

Zafrero (Sp.). A workman occupied in handling waste rock. (Halse)

Zahino (Colom.). Timber used for shaft lagging. (Halse)

Zambullidor (Colom.). One who pans gravel with a large *batea*. (Lucas)

Zambullidora (Colom.). An oval pan with handle. A large *batea*. (Lucas)

Zambullir (Colom.). To extract the gold from the bottom of streams with a large *batea*. (Lucas)

Zapa (Colom.). A small intermediate level driven between two main levels. (Halse)

Zapapico (Sp.). A pickax; a mattock. (Halse)

Zapato (Sp.). A shoe or stamp; *Z. de freno*, a brake shoe. (Halse)

Zar (Persia). Gold. (C. G. W. Lock)

Zaranda (Sp.). 1. Large ore-screen; a grizzly. 2. A small sieve used in assaying. (Halse)

Zarandero (Mex.). One who attends the screen. (Dwight)

Zaratite. A massive, vitreous, emerald-green, hydrous nickel carbonate, $H_{12}Ni_3CO_{11}$. Occurs usually as an incrustation (U. S. Geol. Surv.). Also called Emerald nickel.

Zarnec; Zarnich. Native sulphide of arsenic, including sandarac and orpiment. (Webster)

Zaroche (Mex.). 1. Gold of low color containing silver. (Lucas)
2. (Ecuador) Mountain sickness. *See* Soroche, 1. (Halse)

Zarzo (Sp., Am.) Timbering; propping. (Lucas)

Zawn (Corn.). A cavern. (Raymond)

Zax. A tool for trimming and puncturing roofing slates. (Webster)

Zeasite. An old name for a variety of fire opal. (Chester)

Zebeb (Arabic). Gold. (C. G. W. Lock)

Zechstein (Ger.). The upper division of the Permian in Europe. (Webster)

Zefre (Sp.). A safety fuse. (Halse)

Zellweger furnace. A long-hearth reverberatory furnace used at Iola, Kans. (Ingalls, p. 112)

Zeolite. A generic term for a group of minerals occurring in cracks and cavities of igneous rocks, especially the more basic lavas. Zeolites are hydrous silicates of aluminum with either sodium or calcium or both, and rarely barium or strontium. Before the blowpipe most of the zeolites fuse readily and with strong intumescence, whence their name, derived from the Greek, for "boiling stone." They have little economic importance. (U. S. Geol. Surv.)

Zeolitization. The process by which a mineral is converted into zeolite by alteration, *e. g.* nepheline into thompsonite. (Century)

Zeuxite (Corn.). An obscure mineral, probably tourmaline. (Chester)

Zeylanite. *See* Ceylonite. (Standard)

Ziervogel process. The extraction of silver from sulphide ores or matte by roasting in such a way as to form sulphate of silver, leaching this out with hot water ,and precipitating the silver by means of metallic copper. (Raymond)

Zietrisikite. A brown, fossil wax resembling ozocerite. (Standard)

Zighyr; Zigger; Sicker (Corn.). To percolate, trickle, or ooze, as water through a crack. From the German, *sickern*. (Raymond)

Ziment water. Water impregnated with copper: found in copper mines. (Standard)

Zinc. 1. A bluish-white, crystalline, metallic substance. Not found native. Symbol Zn; atomic weight, 65.37; specific gravity, 7 to 7.2. 2. To coat or cover with zinc.

Zincaluminite. A light-blue, hydrated zinc sulphate, with zinc and aluminum hydrates, $Al_6Zn_6S_2O_{21},18H_2O$., that crystallizes in the hexagonal system. (Standard)

Zincblende. *See* Sphalerite.

Zinc bloom. *See* Hydrozincite; Zinc oxide.

Zinc box. A box containing zinc for the precipitation of gold from cyanide solutions. (Rickard)

Zinc colic. A form of colic thought to be caused by zinc-oxide poisoning. (Century)

Zinc dust. Finely-divided zinc, zinc-oxide, and impurities, incidentally produced in the manufacture of spelter. It is sometimes used as an inferior paint (zinc-gray). (Raymond)

Zinc gray. *See* Zinc dust.

Zinc green. Cobalt green. (Webster)

Zincing. The act or process of heating iron plate with zinc or zinc salts; galvanization. (Standard)

Zincite; Red oxide of zinc. Zinc oxide, ZnO. Contains 80.3 per cent zinc. (U. S. Geol. Surv.)

Zincolysis. A mode of decomposition occasioned by an electrical current; electrolysis. (Century)

Zincolyte. A body decomposable by electricity; an electrolyte. (Century)

Zinc ores. Zinc is not found native. *See* Calamine, Franklinite, Hydrozincite, Nicholsonite, Smithsonite, Sphalerite, Willemite, Wurtzite, Zincite. (U. S. Geol. Surv.)

Zinc oxide. A white pulverulent oxide ZnO, made by burning zinc in air. It is used as a pigment, chiefly as a substitute for white lead. Called also Flowers of zinc; Nihil album; Philosopher's wool; Zinc bloom; Zinc white. (Standard)

Zinc scum. The zinc-silver alloy skimmed from the surface of the bath in the process of desilverization of lead by zinc. (Raymond)

Zinc spar. An early name for Smithsonite. (Chester)

Zinc spinel. A synonym for Gahnite. (Chester)

Zinc sulphate. A compound, $ZnSO_4$, usually obtained by dissolving zinc in sulphuric acid, or by roasting and oxidizing certain zinc ores. (Webster)

Zinc vitriol. 1. A common name for goslarite (Chester). Zinc sulphate.

Zinc white. Oxide of zinc. (Raymond)

Zinkazurite. A mineral found in small, blue crystals, probably a mixture of sulphate of zinc and carbonate of copper. (Chester)

Zinkenite. A native lead-antimonite of sulphur, $PbSb_2S_4$ (Webster). *Also* Zinckenite.

Zinkite. Same as Zincite.

Zinnwaldite. An iron-lithia mica in form near biotite. Color pale violet, yellow to brown and dark gray. (Dana)

Zippeite. A basic sulphate of Uranium. (Century)

Ziquitumba (Colom.). Unwatering a a mine, by manual labor, the men carrying the water from one shaft or winze to another. (Halse)

Zircon. Zirconium silicate, $ZrSiO_4$. When clear and orange-colored it is used for the gem known as hyacinth. (U. S. Geol. Surv.) Also called Azorite.

Zirconia. Zirconium dioxide, ZrO_2.

Zirconium. A rare element found in combined form only. A grayish crystalline metallic substance. Symbol, Zr; atomic weight, 90.6; specific gravity. 4.15. (Webster)

Zircon light. A light similar to the calcium light, produced by incandescent zirconia. (Webster)

Zircon-syenite. A name originally given by Hausmann to certain Norwegian nephelite-syenites which were rich in zircons. Later it was practically used as a synonym for nephelite-syenite, but is now obsolete. (Kemp)

Zirkelite. 1. A name proposed by Wadsworth in 1887 to designate altered, basaltic glasses, in distinction from their unaltered or tachylitic state. (Kemp)
2. A variety of the thorium-bearing minerals. (Moses)

Zirlite. A light-yellow, aluminum hydrate, $Al(OH)_3$, that is found amorphous, and is closely related to gibbsite. (Standard)

Ziskon. A trade name for an alloy of aluminum and zinc, containing 25 per cent of the latter metal: used in making scientific instruments. (Century)

Zloto (Polish). Gold. (C. G. W. Lock)

Zobtenite. Roth's name for metamorphic rocks with the composition of gabbros, *i. e.*, rocks not certainly igneous. The name is derived from the Zobtenberg, a Silesian mountain. (Kemp)

Zoic. In geology, containing fossils, or yielding evidence of contemporaneous plant or animal life: said of rocks. (Standard)

Zoisite. A basic orthosilicate of calcium and aluminum, $Ca_2(AlOH)Al_2(SiO_4)_3$; the aluminum is sometimes replaced by iron, thus graduating toward epidote. (Dana)

Zoisitization. The conversion of feldspar into zoisite. (Webster)

Zolotnik. A Russian weight equal to 65.83 grains. (Lock)

Zona (Sp.). 1. A layer or band of mineral in a vein. 2. A zone, belt, or band of rock limited horizontally or vertically, and characterized by certain minerals or fossils. (Halse)

Zonal structure. A term especially used in microscopic work to describe those minerals whose cross-sections show their successive concentric layers of growth. (Kemp)

Zone. 1. In geology, used in the same sense as horizon to indicate a certain geological level or chronological position, without reference to the local attitude or dip of the rock. (Roy. Com.)
2. An area or region more or less set off or characterized as distinct from surrounding parts, as in a metalliferous region, the mineral zone. 3. In crystallography, a series of faces whose intersection lines with each other are all parallel. (Webster)

Zone of capillarity. An area that overlies the zone of saturation and contains capillary voids, some, or all, of which are filled with water that is held above the zone of saturation by molecular attraction acting against gravity. (Meinzer)

Zone of discharge. As suggested by J. W. Finch, the zone embracing that part of the belt of saturation which has a means of horizontal escape. *See* Gathering zone and Static zone. (Lindgren, p. 3)

Zone of flowage. As proposed by Van Hise, the lower zone of the outer part of the earth's crust in which the deformation of rocks is by granulation or recrystallization, no opening being produced, or at least none except of microscopic size. *See* Zone of fracture. (Posepny in Genesis of Ore deposits, p. 286)

Zone of fracture. As proposed by Van Hise, the upper portion of the earth's crust and in which rocks are deformed mainly by fracture. *See* Zone of flowage. (Posepny in Genesis of Ore Deposits, p. 286)

Zone of saturation. An area which contains capillary or supercapillary voids, or both, that are full of water that will move under ordinary hydrostatic pressure. (Meinzer)

Zones. In a shaft furnace, the different portions (horizontal sections) are called zones, and characterized according to the reactions which take place in them, as the zone of fusion or smelting zone, the reduction zone, etc. (Raymond)

Zonochlorite. A zeolitic mineral, perhaps related to thompsonite. (Century)

Zoögene. In geology, of, pertaining to, consisting of, resulting from, or indicative of animal life or structure. (Standard)

Zoölite; Zoölith. A fossil animal. (Webster)

Zorgite. A massive granular selenide of lead and copper in varying amounts. (Dana)

Zueing. *See* Zur.

Zundererz (Ger.). Tinder ore; an ore of antimony occurring in the Saxon mines in soft, flexible, tinderlike masses, of a blackish-red color and little luster. (Page)

Zungite. A fluosilicate of aluminum in transparent tetrahedral crystals, from the Zuni mine, Colorado. (Webster)

Zur; Zueing; Dezuing (Eng.). The same as hulking a lode, *viz*, removing the soft side for facilitating the breaking down the harder part thereof. (Hunt)

Zurlite. A white or green variety of melilite. (Standard)

Zurrón (Mex.). A rawhide ore sack holding about 150 pounds; a load for a *Tanatero*. *See* Tanate. (Dwight)

Zurronero (Mex.). A laborer who conveys ore or waste in bags. (Halse)

Zwieselite. A clove-brown variety of triplite. (Dana)

Zwitter. A Saxon miner's term for a variety of greisen. Only of significance in connection with tin ores. (Kemp)

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